

CR 120,005
FEBRUARY, 1972

—SPACE SHUTTLE—

**EFFECTS OF CRUISE ENGINE
LOCATION AND POWER ON
INTERFERENCE FOR A MSFC
PARAMETRIC BOOSTER**

(M = 0.40 TO 1.13)

by

Dale Bradley, LMSC/HREC

N72-18866

Unclas

G3/31 16448

NSRDC 7x10 FOOT
TRANSONIC WIND TUNNEL

**Navy Ship Research and
Development Center**

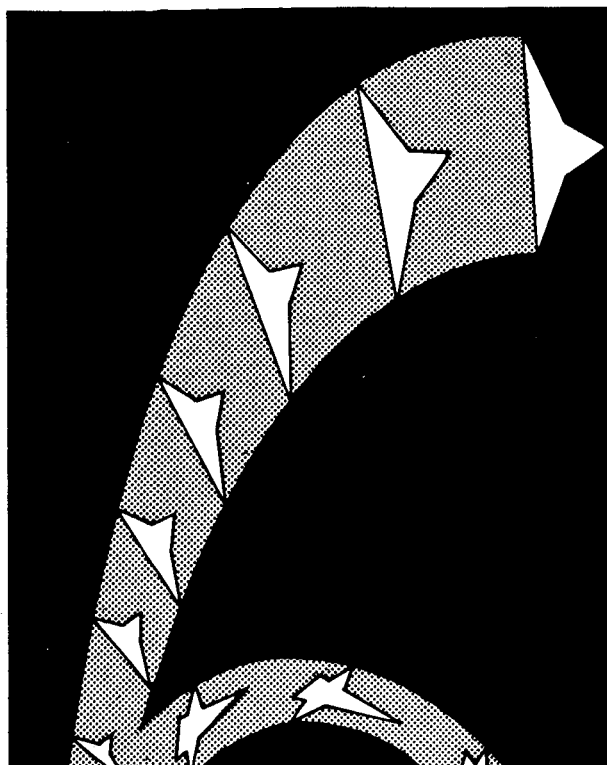
SADSAC SPACE SHUTTLE
AEROTHERMODYNAMIC
DATA MANAGEMENT SYSTEM

CONTRACT NAS8-4016
MARSHALL SPACE FLIGHT CENTER

SPACE DIVISION  **CHRYSLER
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SADSAC/SPACE SHUTTLE
WIND TUNNEL TEST DATA REPORT

CONFIGURATION: MSFC Parametric Booster - 0.015 Scale

TEST PURPOSE: Investigate the Effects of Cruise Engine Location and Power
on Interference.

TEST FACILITY: NSRDC 7 x 10 Foot Transonic Wind Tunnel

TESTING AGENCY: LMSC/HREC

TEST NO. & DATE: NSRDC 3210; April, 1971

FACILITY COORDINATOR: Mr. Dale Chadock - NSRDC

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AMENDMENT 153

DRL 184-58

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A B S T R A C T

This report presents data, in plotted form, of tests for determining the interference effects of space shuttle booster cruise engine location for power-on and power-off conditions. The tests were conducted in the Naval Ship Research and Development Center's (NSRDC) 7 x 10-Foot Transonic Wind Tunnel. The model was a 0.015-scale space shuttle booster specially equipped for propulsion effects testing.

Overall objective of the test was to obtain force, static stability, and control effectiveness data for several cruise engine locations under power-on and power-off conditions. Data were obtained over a Mach number range of 0.4 to 1.13 at angles of attack from -4° to 20° at zero degrees sideslip and at angles of sideslip from -6° to $+6^{\circ}$ at constant angles of attack of 0° , 6° , 15° , and in some cases 10° . Additional parameters investigated were: elevon deflection, canard deflection, aileron deflection, rudder deflection, canard position, and mass flow rate.

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INTRODUCTION

NASA-George C. Marshall Space Flight Center (MSFC) is currently investigating several configurations of a space shuttle booster concept. In support of this effort (Contract NAS8-26370) Lockheed-Huntsville has conducted an extensive experimental test program in the Naval Ship Research and Development Center (NSRDC) 7 x 10-foot Transonic Wind Tunnel to determine the aerodynamic interference effects of cruise engine location. Results of this investigation will be used by MSFC to provide guidance to the major contractors of the space shuttle booster. Overall objective of the test will be to obtain force, static stability, and control effectiveness data for several alternate locations of the cruise engines on a 0.015-scale space shuttle booster configuration. These data were obtained for a cruise Mach number of 0.40 and altitude of 10,000 feet ($q = 165$ psf). After selection of the most promising configuration, data were obtained at Mach numbers from 0.40 up to and including 1.2 as a check of their transonic stability and control characteristics. All tests were conducted at a tunnel Reynolds number per foot of approximately 2×10^6 .

Additional parameters investigated were elevon deflection, canard deflection, aileron deflection, rudder deflection, canard position, and mass flow rate. Values for these parameters as well as the configurations investigated are available from the Data Collation Sheets.

CONFIGURATIONS INVESTIGATED

The baseline model was a modified version of the 0.015-scale McDonnell Douglas model (256-14 booster configuration). A sketch of a similar model showing overall dimensions is included as Fig. 2. In addition to the variations in cruise engine location, the model had deflectable elevons, canard trailing edge flaps, dorsal fin rudders and wingtip rudders. Deflection angles were obtained by replacing the control surface with a separate surface set to the desired angle. Dummy engine pods were mounted on the model to obtain the power-off interference effects data. The five engine locations tested were: (1) above the body near the canard; (2) below the body near the canard; (3) above the wing (four engines to the left and four engines to the right); (4) below the wing; and (5) above the wing on pylons. A sketch of the dummy engine pods is included as Fig. 3. Several pressure measurements were required to monitor the mass flow rate of the nozzles. Total and static pressure at nozzle exit; plenum total pressure for each block of nozzles and plenum temperature were monitored. The locations of the pressure tubes were as shown in Fig. 4.

Six pressure ports were required for measuring the base pressures, and were located as shown in Fig. 5. Measurements from the pressure ports were used to calculate the base drag coefficient.

To ensure a turbulent boundary layer, artificial transition strips were applied as shown in Fig. 6. Wing, body and canard grit size was calculated by the method of Braslow and Knox (Ref. 2) for a tunnel Reynolds number of 2×10^6 per foot.

The following model component were utilized during the test:

B1	Baseline MDAC booster body 256-19A-X
C2	Booster small canard
E1	Body mounted engine pods; high location
E2	Body mounted engine pods; low location
E3	Wing mounted engine pods, above wing
E4	Wing mounted engine pods, below wing
F2	With canard C2
G1	Dummy body mounted engine pods, high location
G2	Dummy body mounted engine pods, low location
G3	Dummy wing mounted engine pods, above wing
G4	Dummy wing mounted engine pods, below wing
P	Wing pylon
V1	Booster wing tip vertical fin
V2	Booster wing tip extension
W1	Baseline booster wing 256-14

Pertinent dimensional information that is available for each of these components is given in the Model Component Description Sheets which follow the Figures. The Dataset Collation Sheets show the various component combinations tested and summarizes the total test conditions.

TEST NSRDC 3210 DATA SET/RUN NUMBER
COLLATION SUMMARY

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD. PARAMETERS/VALUES							NO. of RUNS	Parameters/Values				Mach Number				
		a	b	d _e	d _c	d _g	d _r	CND POS		WNG POS	I _c	I _w	.7	.8	.9	1.0	1.125	
AN3001	BIG2 F2 W/V1	A	0	0	0	0	0	5	1	1	3°	0°	5	9	13	17	21	
02		0	A	1	1	1	1	1	1	1	1	1	6	10	14	18	22	
03		6	1	1	1	1	1	1	1	1	1	1	7	11	15	19	23	
04		15	1	1	1	1	1	1	1	1	1	1	8	12	16	20	24	
05		A	0	10	1	1	1	1	1	1	1	1	6.3	6.7	7.1	7.5	7.9	
06		0	A	1	1	1	1	1	1	1	1	1	6.4	6.8	7.2	7.6	8.0	
07		6	1	1	1	1	1	1	1	1	1	1	6.5	6.9	7.3	7.7	8.1	
08		15	1	1	1	1	1	1	1	1	1	1	6.6	7.0	7.4	7.8	8.2	
09		A	0	-10	1	1	1	1	1	1	1	1	2.5	2.9	3.3	3.7	4.1	
10		0	A	1	1	1	1	1	1	1	1	1	2.6	3.0	3.4	3.8	4.2	
11		6	1	1	1	1	1	1	1	1	1	1	2.7	3.1	3.5	3.9	4.3	
12		15	1	1	1	1	1	1	1	1	1	1	2.8	3.2	3.6	4.0	4.4	
13		A	0	-20	1	1	1	1	1	1	1	1	4.6	5.0	5.4	5.8	6.2	
14		0	A	1	1	1	1	1	1	1	1	1	4.7	5.1	5.5	5.9		
15		6	1	1	1	1	1	1	1	1	1	1	4.8	5.2	5.6	6.0		
16		15	1	1	1	1	1	1	1	1	1	1	4.9	5.3	5.7	6.1		
17		A	0	20	1	1	1	1	1	1	1	1	1.35	1.39	1.43	1.47		
18		0	A	1	1	1	1	1	1	1	1	1	1.36	1.40	1.44	1.48		
19		6	1	1	1	1	1	1	1	1	1	1	1.37	1.41	1.45	1.49		
20		15	1	1	1	1	1	1	1	1	1	1	1.38	1.42	1.46	1.50		

TEST RUN NUMBERS

TEST RUN NUMBERS

COEFFICIENTS:

a or b
SCHEDULES

ALPHA SCHEDULE A: -4, 0, 2, 4, 6, 8, 10, 15, 20
BETA SCHEDULE A: -6, -3, 0, 3, 6

IDPVAR(1) IDPVAR(2) NDV

TEST NSRDC-3210 DATA SET/RUN NUMBER
COLLATION SUMMARY

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES					NO. of RUNS	Parameters/Values				Mach Numbers								
		α	β	θ_e	θ_c	θ_a	θ_r	FOR		FOR	I_c	I_w										
AN3021	BIG2E2W/V	A	0	0	10	0	0	5	1	1	3°	0°					.7	.8	.9	1.0	1.125	
22		0	A	T	T	T	T										232	236	240	244	248	
23		6	T					4									233	237	241	245	249	
24		15	T														234	238	242	246	250	
25		A	0					5									235	239	243	247	—	
26		0	A	10													83	87	91	95	99	
27		6	T	T													84	88	92	96	100	
28		15	T	T				4									85	89	93	97	101	
29		A	0	20				5									86	90	94	98	—	
30		0	A	T													199	203	207	211	215	
31		6	T					4									200	204	208	212	216	
32		15	T					4									201	205	209	213	—	
33		A	0	0	20			5									202	206	210	214	—	
34		0	A	T													251	255	259	263	267	
35		6	T														252	256	260	264	268	
36		15	T					4									253	257	261	265	269	
37		A	0		0	10		5									254	258	262	266	—	
38		0	A														164	168	172	176	180	
39		6	T														165	169	173	177	181	
40		15	T					4									166	170	174	178	182	
																	167	171	175	179	—	
1	7	13	19	25	31	37	43	49	55	61	67	75	76									
													TEST RUN NUMBERS									

TEST RUN NUMBERS

COEFFICIENTS:
 α or β
SCHEDULES

ALPHA SCHEDULE A: -4.0, 2.4, 6.8, 10.15, 20
BETA SCHEDULE A: -6, -3, 0, 3, 6

IDPVAR(1) IDPVAR(2) INDV

8

POSTTEST

TEST RUN NUMBERS

$$\Rightarrow |IDPVAR(1)| |IDPVAR(2)| \dots |NDV$$

ALPHA SCHEDULE A: -4,0,3,4,6,8
BETA SCHEDULE A: -6,-3,0,3,6

TEST NSRDC 3210 DATA SET/RUN NUMBER
COLLATION SUMMARY

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES					NO. of RUNS	Parameters/Values					Mach Numbers									
		a	B	θ_e	θ_c	θ_a	θ_r	END FOR		ENG FOR	I_c	I_v	\dot{m}	.4	.5	.7	.8	.9	1.0	1.125				
RN3062	B1W1V2	0	A	0	-	0	-	-	5	-	1	-	0°	-	-	-	272	276	280	284	288			
63		6	T	T	T	T	T	T	T	T	T	T	T	T	-	-	273	277	281	285	289			
64		15	T	T	T	T	T	T	T	T	T	T	T	T	-	-	274	278	282	286	290			
65	B1W1V1	A	0												-	-	291	295	298	301	304			
66		0	A												-	-	292	296	299	302	305			
67		6	T												-	-	293	297	300	303	306			
68		15	T						1						-	-	294	-	-	-	-			
69	B	A	1	-	-	-	-	-	3						-	-	-	-	307	308	309			
70	RIC22W1V1E3P	A	0	0	0	0	0	0	1	1	1	3°	0°	0	-	310	-	-	-	-				
71		0	A	T	T	T	T	T	T	T	T	T	T	T	-	311	-	-	-	-				
72		6	T												-	312	-	-	-	-				
73		15	T												-	313	-	-	-	-				
74		A	0											.732	-	314	-	-	-	-				
75		0	A												-	315	-	-	-	-				
76		6	T												-	316	-	-	-	-				
77		15	T												-	317	-	-	-	-				
78		A	0											0	318	-	-	-	-	-				
79		0	A												319	-	-	-	-	-				
80		6	T												320	-	-	-	-	-				
81		15	T												321	-	-	-	-	-				

TEST RUN NUMBERS

TEST RUN NUMBERS

COEFFICIENTS:

a or B

SCHEDULES

ALPHA SCHEDULE A: -4, 0, 2, 4, 6, 8, 10, 15, 20

BETA SCHEDULE A: -6, -3, 0, 3, 6

IDPVAR(1) IDPVAR(2) IDV

TEST NSFDC 3210 DATA SET/RUN NUMBER
COLLATION SUMMARY

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES					NO. of RUNS	Parameters/Values					Mech Numbers				
		a	b	d _e	d _c	d _a	d _r	CND POS		WNG POS	I _c	I _w	I _m						
RN3082	BIC2F2W1V1E3P	A	0	0	0	0	0	1	1	1	3	0	.753		.5				
083		0	A	T	T	T	T	T	T	T	T	T	T						
084		6	T																
085		15																	
086	BIC2F2W1V1E3	A	0									0							
087		0	A									T							
088		6	T									T							
089		15											.765						
090		A	0									T							
091		0	A									T							
092		6	T									T							
093		15																	
094		A	0									0							
095		0	A									T							
096		6	T									T							
097		15																	
098		A	0									.760							
099		0	A									T							
100		6	T																
101		15																	

TEST RUN NUMBERS

TEST RUN NUMBERS

COEFFICIENTS:

a or b

SCHEDULES

ALPHA SCHEDULE A: -9 9 2 4 6 8 10 15 20

BETA SCHEDULE A: -6 -3 0 3 6

IDPVAR(1) IDPVAR(2) INDV

TEST NSROC 3210 DATA SET/RUN NUMBER
COLLATION SUMMARY

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES						Parameters/Values		Mach Number				
		a	b	de	dc	da	dr	NO. of RUNS	END POS	WNG POS	1 _c	1 _w	h	.4	.5	
AN3102	BIC2F2WVUE4	A	0	0	0	0	0	1	1	1	3"	0"	0	345	-	
03		0	A	T	T	T	T	T	T	T	T	T	T	346	-	
04		6	T	T	T	T	T	T	T	T	T	T	T	347	-	
05		10	T	T	T	T	T	T	T	T	T	T	T	348	-	
06		A	0											349	-	
07		0	A											350	-	
08		6	T											351	-	
09		10	T											352	-	
10		A	0											353	-	
11		0	A											354	-	
12		6	T											355	-	
13		10	T											356	-	
14		A	0											357	-	
15		0	A											358	-	
16		6	T											359	-	
17		10	T											360	-	
18	BIC2F2WVUE2	A	0											361	-	
19		0	A											362	-	
20		6	T											363	-	
21		10	T											364	-	
														365	-	

TEST RUN NUMBERS

COEFFICIENTS:

a or b
SCHEDULES

ALPHA SCHEDULE A: -4, 0, 3, 4, 6, 8, 10, 15, 20
BETA SCHEDULE A: -6, -3, 0, 3, 6

IDPVAR (1) IDPVAR (2) IDV

TEST NSRNC 3210 DATA SET/RUN NUMBER
COLLATION SUMMARY

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES					NO. of RUNS	Parameters/Values					Each Number				
		a	b	d _e	d _c	d _a	d _r			CND POS	WNG POS	i _c	i _w	i _m	.4	.5			
<u>RN3123</u>	<u>RICIFRWIIE2</u>	A	0	0	0	0	0		1	1	1	3	0	.728	367	-			
23		0	A	T	T	T	T		T	T	T	T	T	T	368	-			
24		6	T	T	T	T	T		T	T	T	T	T	T	369	-			
25		10	T	T	T	T	T		T	T	T	T	T	T	370	-			
26		A	0	T	T	T	T		T	T	T	T	T	T	-	371			
27		0	A	T	T	T	T		T	T	T	T	T	T	-	372			
28		6	T	T	T	T	T		T	T	T	T	T	T	-	373			
29		10	T	T	T	T	T		T	T	T	T	T	T	-	374			
30		A	0	T	T	T	T		T	T	T	T	T	T	.702	-	375		
31		0	A	T	T	T	T		T	T	T	T	T	T	-	376			
32		6	T	T	T	T	T		T	T	T	T	T	T	-	377			
33		10	T	T	T	T	T		T	T	T	T	T	T	-	378			
34		A	0	T	T	T	T		T	T	T	T	T	T	0	387	-		
35		0	A	T	T	T	T		T	T	T	T	T	T	.387	-			
36		6	T	T	T	T	T		T	T	T	T	T	T	.390	-			
37		10	T	T	T	T	T		T	T	T	T	T	T	.391	-			
38		A	0	T	T	T	T		T	T	T	T	T	T	1.617	383	-		
39		0	A	T	T	T	T		T	T	T	T	T	T	.384	-			
40		6	T	T	T	T	T		T	T	T	T	T	T	.385	-			
41		10	T	T	T	T	T		T	T	T	T	T	T	.386	-			

TEST RUN NUMBERS

COEFFICIENTS:
a or b
SCHEDULES

ALPHA SCHEDULE A: -4.0, 2.4, 6.8, 10.15, 20
BETA SCHEDULE A: -6, -3, 0, 3, 6

IDPVAR(1) IDPVAR(2) INDV

TEST NSRDC 310 DATA SET/RUN NUMBER
COLLATION SUMMARY

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES					NO. of RUNS	Parameters/Values					Mach Number			
		a	b	d _e	d _c	d _a	d _r	CND POS		ANG POS	I _c	I _w	in	.4	.5			
RA3142	B1C2F2W1V1	A	0	0	0	0	0	1	2	1	3	0	0	392	-			
43		0	A	-	-	-	-	-	-	-	-	-	-	393	-			
44		6	T	-	-	-	-	-	-	-	-	-	-	394	-			
45		10	T	-	-	-	-	-	-	-	-	-	-	395	-			
46		A	0	-	-	-	-	-	-	-	-	-	-	396	-			
47		0	A	-	-	-	-	-	-	-	-	-	-	397	-			
48		6	T	-	-	-	-	-	-	-	-	-	-	398	-			
49		10	T	-	-	-	-	-	-	-	-	-	-	399	-			
50		A	0	-	-	-	-	0	-	-	-	-	-	401	-			
51		0	A	-	-	-	-	-	-	-	-	-	-	402	-			
52		6	T	-	-	-	-	-	-	-	-	-	-	403	-			
53		15	T	-	-	-	-	-	-	-	-	-	-	404	-			
54		A	0	-	-	-	-	1,459	-	-	-	-	-	405	-			
55		0	A	-	-	-	-	-	-	-	-	-	-	406	-			
56		6	T	-	-	-	-	-	-	-	-	-	-	407	-			
57		15	T	-	-	-	-	-	-	-	-	-	-	408	-			
58	B1C2F2W1V1	A	0	-	-	-	-	-	-	-	-	-	-	410	-			
59		0	A	-	-	-	-	-	-	-	-	-	-	411	-			
60		6	T	-	-	-	-	-	-	-	-	-	-	412	-			
61		15	T	-	-	-	-	-	-	-	-	-	-	413	-			
TEST RUN NUMBERS																		
1	7	13	19	25	31	37	43	49	55	61	67	75	76					

TEST RUN NUMBERS

COEFFICIENTS: ALPHA SCHEDULE A: -4.0 2.4 6.8 10.15 20
BETA SCHEDULE B: -6 -3 0 3 6
 a or b
 SCHEDULES

IDPVAR(1) IDPVAR(2) NDV

TEST ASRDC.3210 DATA SET/RUN NUMBER
COLLATION SUMMARY

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCED.		PARAMETERS/VALUES					NO. of RUNS		Parameters/Values				Mach Number		
		a	B	de	dc	da	dr		END POS	RNG POS	1c	1u					
63/62	BIC2F2WV1	A	0	0	0	0	0	1	1	1	3	0	-	443			
63		0	A										-	414			
64		6											-	415			
65		15											-	416			
66	BIC2F2WV1A3P	A	0										417	-			
67		0	A										418	-			
68		6											419	-			
69		15											420	-			
70		A	0										-	421			
71		0	A										-	422			
72		6											-	423			
73		15											-	424			
74	BIC2F2WV1A3	A	0										425	-			
75		0	A										426	-			
76		6											427	-			
77		15											428	-			
78		A	0										-	429			
79		0	A										-	430			
80		6											-	431			
81		15											-	432			

TEST RUN NUMBERS

COEFFICIENTS: ALPHA SCHEDULE A: -4.0 2.4 6.8 10.15 20
BETA SCHEDULE A: -6.3 0.3 6
 a or B
 SCHEDULES

IDPVAR(1) IDPVAR(2) NDV

TEST MSENC 3210 DATA SET/RUN NUMBER
COLLATION SUMMARY

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES					NO. of RUNS	Parameters/Values				Mach Number					
		a	B	δ_e	δ_c	δ_a	δ_r	CND POS		MNG POS	1c	1u		.4	.5	.7	.8	.9	1.0
EN3182	BIC2F2W1V1G4	A	0	0	0	0	0	1	1	3	0	433	434	435	-	436	438		
183		0	A	T	T	T	T					-	-	-	-	437	-		
184		A	0									433	-	-	-	-	-		
185		0	A									451	-	-	-	-	-		
186		6	T									452	-	-	-	-	-		
187		15	T									453	-	-	-	-	-		
188		A	0									-	431	-	-	-	-		
189		0	A									-	454	-	-	-	-		
190		6	T									-	455	-	-	-	-		
191		15	T									-	456	-	-	-	-		
192	BIC2F2W1V1G2	A	0									439	-	-	-	-	-		
193		0	A									445	-	-	-	-	-		
194		6	T									446	-	-	-	-	-		
195		15	T									447	-	-	-	-	-		
196		A	0									-	440	-	-	-	-		
197		0	A									-	448	-	-	-	-		
198		6	T									-	449	-	-	-	-		
199		15	T									-	450	-	-	-	-		
200		A	0									439	440	441	-	442	444		
201		0	A									-	-	-	-	443	-		

TEST RUN NUMBERS

TEST RUN NUMBERS

1	7	13	19	25	31	37	43	49	55	61	67	75	76
---	---	----	----	----	----	----	----	----	----	----	----	----	----

COEFFICIENTS:
a or B
SCHEDULES
ALPHA SCHEDULE A: -4 0 1 4 6 8 10 15 20
BETA SCHEDULE A: -6 -3 0 3 6
IDPVAR(1) IDPVAR(2) NDV

16

~~POST~~TEST

TEST RUN NUMBERS

$$\Rightarrow \text{IDPVAR}(1) | \text{IDPVAR}(2) | \text{NDV}$$

TEST FACILITY DESCRIPTION

The test program was conducted in the NSRDC 7 x 10 foot transonic wind tunnel, which is a closed-loop, continuous flow tunnel with a Mach number range from $M = 0.40$ to $M = 1.20$ at simulated altitudes from sea level to 40,000 feet. Reynolds number can be varied between 1×10^6 and 3×10^6 per foot by adjusting the settling chamber total pressure. A detailed description of the test facility can be found in Ref. 1.

TEST CONDITIONS
TEST NSRDC 3210

BALANCE UTILIZED: TSB - 24

$$\begin{array}{r} \pm 0.0290 \\ \hline \pm 0.0097 \\ \hline \pm 0.0020 \\ \hline \pm 0.0009 \\ \hline \pm 0.0003 \\ \hline \pm 0.0004 \end{array}$$

NASA-MSF -MAF

DATA REDUCTION

All model forces and moments were resolved in the body axis system and presented in the form of non-dimensional coefficients. Stability axis lift and drag coefficients and the ratio of lift to drag were required. Coefficients were non-dimensionalized as given below.

$$C_N = \frac{F_N}{qS_{\text{ref}}}, \text{ normal force coefficient}$$

$$C_A = \frac{F_A}{qS_{\text{ref}}}, \text{ axial force coefficient}$$

$$C_Y = \frac{F_Y}{qS_{\text{ref}}}, \text{ side force coefficient}$$

$$C_{LM} = \frac{M_y}{qS_{\text{ref}}l_{\text{ref}}}, \text{ pitching moment coefficient}$$

$$C_{YN} = \frac{M_z}{qS_{\text{ref}}b}, \text{ yawing moment coefficient}$$

$$C_{BL} = \frac{M_x}{qS_{\text{ref}}b}, \text{ rolling moment coefficient}$$

$$C_L = \frac{F_L}{qS_{\text{ref}}}, C_N \cos\alpha - C_A \sin\alpha, \text{ lift force coefficient}$$

$$C_D = \frac{F_D}{qS_{\text{ref}}}, C_A \cos\alpha + C_N \sin\alpha, \text{ drag force coefficient}$$

$$L/D = C_L/C_D, \text{ lift-to-drag ratio}$$

$$C_{AB} = (p_{\infty} - p_b) \frac{A_b}{S_{\text{ref}}}, \text{ base axial force coefficient}$$

$$C_{AF} = C_A - C_{AB}, \text{ forebody axial force coefficient}$$

Data were corrected for any tunnel flow angularities and sting deflections. Axial force was corrected for weight tares. Base pressure coefficients were calculated individually and an average used for calculating the base axial force coefficient.

Nozzle mass flow rate was variable but capable of being held constant for a given Mach number altitude combination.

SADSAC created additional data sets by obtaining an increment due to nozzle mass flow rate and adding this increment to data sets having dummy engines. These data sets are identifiable by an alphabetic character in the sixth column of the data set I. D.

Example:

$RN3082 - RN3078 = \text{increment due to nozzle mass flow rate}$

$RN3166 + \text{increment due to nozzle mass flow rate} = AN300A$

Model reference dimensions to be used in the data reduction are given in Table II.

Table II

0.015-SCALE BOOSTER REFERENCE DIMENSIONS

PARAMETER	FULL SCALE	MODEL SCALE
Reference Area (S_{ref})	6020 ft ²	1.355 ft ²
Reference Length (l_{ref}^b)	229 ft	3.453 ft
Balance Location		
Body Station Bl		2.957 ft
Moment Reference Center		
Body Station (c.g.)	172.92 ft	2.594 ft
Water Line (above \underline{L})	1.25 ft	0.01875 ft
Base Area (A_b)		
High Wing	866.67 ft ²	0.195 ft ²

REFERENCES

1. Thomas, Walter S., "The David Taylor Model Basin 7 x 10-Foot Transonic Wind Tunnel Facility," Aero Report 985, Naval Ship Reserach and Development Center, Carderock, Md., July 1960.
2. Braslow, A. L., and E. C. Knox, "Simplified Method for Determination of Critical Height of Distributed Roughness Particles for Boundary-Layer Transition at Mach Numbers from 0 to 5," NACA TN 4363, September 1958.
3. "Low Speed Aerodynamic Characteristics of the McDonnell Douglas Space Shuttle Booster," DMS DR 1035, DAC LSWT Test No. 1351, Chrysler Corp. Space Division, New Orleans, La., August 1970.
4. "Transonic Aerodynamic Characteristics of the McDonnell Douglas Space Shuttle Booster," Ames 6-6 Foot Transonic Test 66-504, Ames Research Center, Moffett Field, Calif., November 1970.
5. Kemp, N. D., et al., "Data Management System for the NASA/DOD Space Shuttle Phase B Development," TN-AP-70-44, Chrysler Corp. Space Division, New Orleans, La., August 1970.
6. Bradley, D., "Pretest Report for a 0.015-Scale Parametric Space Shuttle Booster Motel in the NSRDC 7 x 10-Foot Transonic Wind Tunnel," LMSC-HREC D162856, Lockheed Missiles & Space Company, Huntsville, Ala., February 1971.

TABLE III
SUMMARY OF SADSAC NOMENCLATURE - AERODYNAMIC FORCE AND MOMENT COEFFICIENTS

COEFFICIENT	COEFFICIENT NAME	SADSAC NOMENCLATURE		
		BODY AXIS	STABILITY AXIS	WIND AXIS
C_A	Total Axial Force	C_A	-	-
C_{AB}	Base Axial Force	C_{AB}	--	-
C_{AF}	Forebody Axial Force	C_{AF}	-	-
C_D	Total Drag Force	-	C_D	C_{DTOTL}
C_{DB}	Base Drag Force	-	C_{DB}	C_{DBASE}
C_{DF}	Forebody Drag Force	-	C_{DF}	C_{DFORE}
C_L	Lift Force	-	C_L	C_L
C_N	Normal Force	C_N	-	-
C_Y	Side Force	C_Y	C_Y	C_C
C_l	Rolling Moment	C_{BL}	C_{SL}	C_{WL}
C_m	Pitching Moment	C_{LM}	C_{LM}	C_{PM}
C_n	Yawing Moment	C_{YN}	C_{LN}	C_{LN}
L/D	Lift-To-Drag Force Ratio	-	L/D	C_L/C_D
L/D	Lift-To-Forebody Drag Force Ratio	-	L/DF	C_L/C_{DF}
N/A	Normal-To-Axial Force Ratio	N/A	-	-
N/A	Normal-To-Forebody Axial Force Ratio	C_N/C_{AF}	-	-

SUMMARY DATA PLOT INDEX

TITLE	PLOTTED		PAGES
	COEFFICIENTS SCHEDULE	CONDITIONS VARYING	
IMSC/HREC Booster Studies-Longitudinal Characteristics-Elevon Effects	A	Elevon Deflection	1-40
IMSC/HREC Booster Studies-Longitudinal Static Derivatives-Elevons	B	Elevon Deflection	41-44
IMSC/HREC Booster Studies-Longitudinal Elevon Control Effectiveness	C	Alpha	45-64
IMSC/HREC Booster Studies-Elevon Control Effectiveness Versus Mach Number	D	Alpha	65-67
IMSC/HREC Booster Studies-Longitudinal Characteristics-Canard Effects	A	Canard Deflection	68-107
IMSC/HREC Booster Studies-Longitudinal Canard Control Effectiveness	E	Alpha	108-127
IMSC/HREC Booster Studies-Canard Control Effectiveness Versus Mach Number	F	Alpha	128-130
IMSC/HREC Booster Studies-Longitudinal Characteristics- Elevon Effects	A	Elevon Deflection	131-170
IMSC/HREC Booster Studies-Longitudinal Static Derivatives-Elevons	B	<u>Elevon Deflection</u>	171-174
IMSC/HREC Booster Studies-Longitudinal Elevon Control Effectiveness	C	Alpha	175-194
IMSC/HREC Booster Studies-Elevon Control Effectiveness Versus Mach Number	D	Alpha	195-197

SUMMARY DATA PLOT INDEX
(Continued)

TITLE	PLOTTED		PAGES
	COEFFICIENTS	CONDITIONS	
	SCHEDULE	VARYING	
IMSC/HREC Booster Studies-Lateral-Directional Characteristics-Rudder Effects	G	Rudder Deflection Alpha \approx 0	198-212
IMSC/HREC Booster Studies-Lateral-Directional Characteristics-Rudder Effects	G	Rudder Deflection Alpha \approx 6.0	213-227
IMSC/HREC Booster Studies-Lateral-Directional Characteristics-Rudder Effects	G	Rudder Deflection Alpha \approx 15.0	228-242
IMSC/HREC Booster Studies-Rudder Control Effectiveness	H	Alpha Beta = 0	243-266
IMSC/HREC Booster Studies-Rudder Control Effectiveness	I	Alpha	267-270
IMSC/HREC Booster Studies-Lateral-Directional Characteristics-Aileron Effects	G	Aileron Deflection Alpha \approx 0	271-285
IMSC/HREC Booster Studies-Lateral-Directional Characteristics-Aileron Effects	G	Aileron Deflection Alpha \approx 6.0	286-300
IMSC/HREC Booster Studies-Lateral-Directional Characteristics-Aileron Effects	G	Aileron Deflection Alpha \approx 15.0	301-315
IMSC/HREC Booster Studies-Aileron Control Effectiveness	J	Alpha Beta = 0	316-339
IMSC/HREC Booster Studies-Aileron Control Effectiveness Versus Mach Number	K	Alpha	340-343
IMSC/HREC Booster Studies-Lateral-Directional Characteristics-Alpha Effects	G	Alpha	344-361

SUMMARY DATA PLOT INDEX
(Continued)

TITLE	PLOTTED		PAGES
	COEFFICIENTS SCHEDULE	CONDITIONS VARYING	
IMSC/HREC Booster Studies-Longitudinal Characteristics-Elevon Effects	A	Elevon Deflection	362-401
IMSC/HREC Booster Studies-Longitudinal Static Derivatives-Elevons	B	Elevon Deflection	402-405
IMSC/HREC Booster Studies-Lateral-Directional Characteristics-Alpha Effects	G	Alpha	406-420
IMSC/HREC Booster Studies-Longitudinal Characteristics-Configuration Comparison	A	Configuration	421-460
IMSC/HREC Booster Studies-Lateral-Directional Characteristics-Configuration Comparison	G	Configuration	461-475
IMSC/HREC Booster Studies-Longitudinal Characteristics-Configuration Comparison	A	Configuration & Mass Flow M = 0.4	476-483
IMSC/HREC Booster Studies-Lateral-Directional Characteristics-Configuration Comparison	G	Configuration & Mass Flow M = 0.4	484-486
IMSC/HREC Booster Studies-Longitudinal Characteristics-Configuration Comparison	A	Configuration & Mass Flow M = 0.5	487-494
IMSC/HREC Booster Studies-Lateral-Directional Characteristics-Configuration Comparison	G	Configuration & Mass Flow M = 0.5	495-497
IMSC/HREC Booster Studies-Longitudinal Characteristics-Configuration Comparison	A	Configuration & Mass Flow M = 0.4	498-505

SUMMARY DATA PLOT INDEX (Continued)

TITLE	PLOTTED		PAGES
	COEFFICIENTS SCHEDULE	CONDITIONS VARYING	
IMSC/HREC Booster Studies-Lateral-Directional Characteristics-Configuration Comparison	G	Configuration & Mass Flow M = 0.4	506-508
IMSC/HREC Booster Studies-Longitudinal Charac- teristics-Configuration Comparison	A	Configuration & Mass Flow M = 0.5	509-516
IMSC/HREC Booster Studies-Lateral-Directional Characteristics-Configuration Comparison	G	Configuration & Mass Flow M = 0.5	517-519
IMSC/HREC Booster Studies-Longitudinal Charac- teristics-Configuration Comparison	A	Configuration & Mass Flow M = 0.4	520-527
IMSC/HREC Booster Studies-Lateral-Directional Characteristics-Configuration Comparison	G	Configuration & Mass Flow M = 0.4	528-530
IMSC/HREC Booster Studies-Longitudinal Charac- teristics-Configuration Comparison	A	Configuration & Mass Flow M = 0.5	531-538
IMSC/HREC Booster Studies-Lateral-Directional Characteristics-Configuration Comparison	G	Configuration & Mass Flow M = 0.5	539-541
IMSC/HREC Booster Studies-Longitudinal Charac- teristics-Configuration Comparison	A	Configuration & Mass Flow M = 0.4	542-549
IMSC/HREC Booster Studies-Lateral-Directional Characteristics-Configuration Comparison	G	Configuration & Mass Flow M = 0.4	550-552

SUMMARY DATA PLOT INDEX
(Continued)

TITLE	PLOTTED		PAGES
	COEFFICIENTS SCHEDULE	CONDITIONS VARYING	
IMSC/HREC Booster Studies-Longitudinal Characteristics-Configuration Comparison	A	Configuration & Mass Flow M = 0.5	553-560
IMSC/HREC Booster Studies-Lateral-Directional Characteristics-Configuration Comparison	G	Configuration & Mass Flow M = 0.5	561-563
IMSC/HREC Booster Studies-Longitudinal Characteristics-Donfiguration Comparison	A	Configuration & Mass Flow M = 0.4	564-571
IMSC/HREC Booster Studies-Lateral-Directional Characteristics-Configuration Comparison	G	Configuration & Mass Flow M = 0.4	572-574
IMSC/HREC Booster Studies-Longitudinal Charac- teristics-Configuration Comparison	A	Configuration & Mass Flow M = 0.5	575-582
IMSC/HREC Booster Studies-Lateral-Directional Characteristics-Configuration Comparison	G	Configuration & Mass Flow M = 0.5	583-585
IMSC/HREC Booster Studies-Longitudinal Charac- teristics-Engine Configuration Variation	A	Configuration	586-625
IMSC/HREC Booster Studies-Lateral-Directional Characteristics-Engine Configuration Variation	G	Configuration	626-634
IMSC/HREC Booster Studies-Longitudinal Charac- teristics-Wing Size	A	Configuration	635-674

SUMMARY DATA PLOT INDEX
(Concluded)

TITLE	PLOTTED		PAGES
	COEFFICIENTS SCHEDULE	CONDITIONS VARYING	
IMSC/HREC Booster Studies-Lateral-Directional Characteristics-Wing Size	G	Configuration	675-689
IMSC/HREC Booster Studies-Longitudinal Charac- teristics of Cruise Engine Propulsion Effects	A	Configuration	690-697
IMSC/HREC Booster Studies-Longitudinal Charac- teristics of Cruise Engine Propulsion Effects	A	Configuration	698-705
IMSC/HREC Booster Studies-Lateral-Directional Characteristics of Cruise Engine Propulsion Effects	G	Configuration	706-708
IMSC/HREC Booster Studies-Lateral-Directional Characteristics of Cruise Engine Propulsion Effects	G	Configuration	709-711

PLOTTED COEFFICIENTS SCHEDULE:

(A) CN, CL, CA, CAB, CD, L/D & CIM vs. Alpha CIM vs. CL	(F) DCL/DC, DCIMDC & DCD/DC vs. Mach
(B) D(CL)/DA, D(CIM)/DA, CIM/CL & CDALFO vs. Mach	(G) CY, CYN & CBL vs. Beta
(C) CL, CIM, CD & L/D vs. ELEVTR	(H) CY, CYN, CBL, CIM, CD & L/D vs. Rudder
(D) DCL/DE, DCIMDE & DCD/DE vs. Mach	(I) DCY/DR, DCYNDR, DCBLDR & DCD/DR vs. Mach
(E) CL, CIM, CD & L/D vs. CANARD	(J) CY, CYN, CBL, CIM, CD & L/D vs. Aileron
	(K) DCY/DA, DCYNDA, DCBLDA, DCD/DA vs. Mach

Notes:

1. Positive directions of force coefficients moment coefficients, and angles are indicated by arrows.
2. For clarity, origins of wind and stability axes have been displaced from the center of gravity.

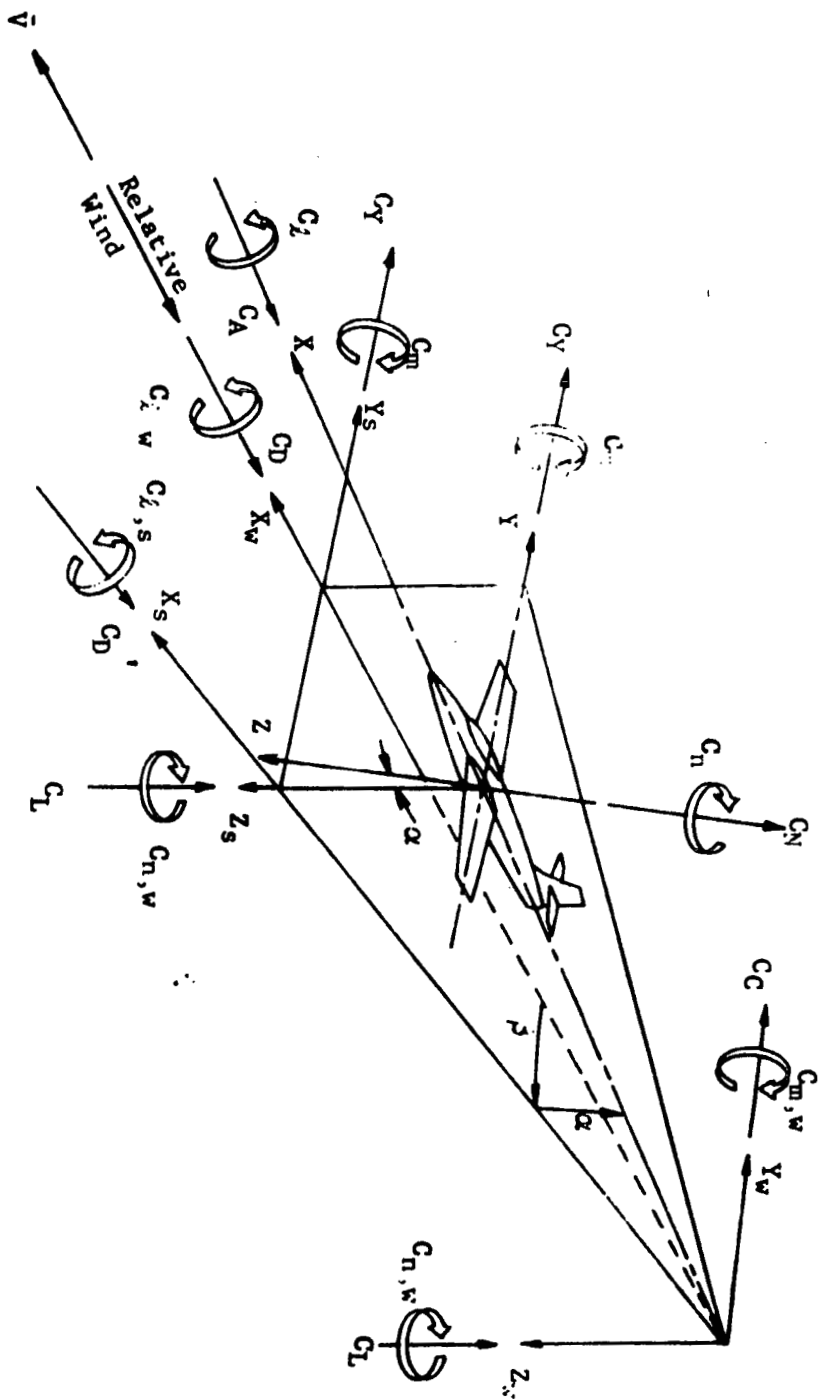


Figure 1. Axis systems, showing direction and sense of force and moment coefficients, angle of attack, and sideslip angle

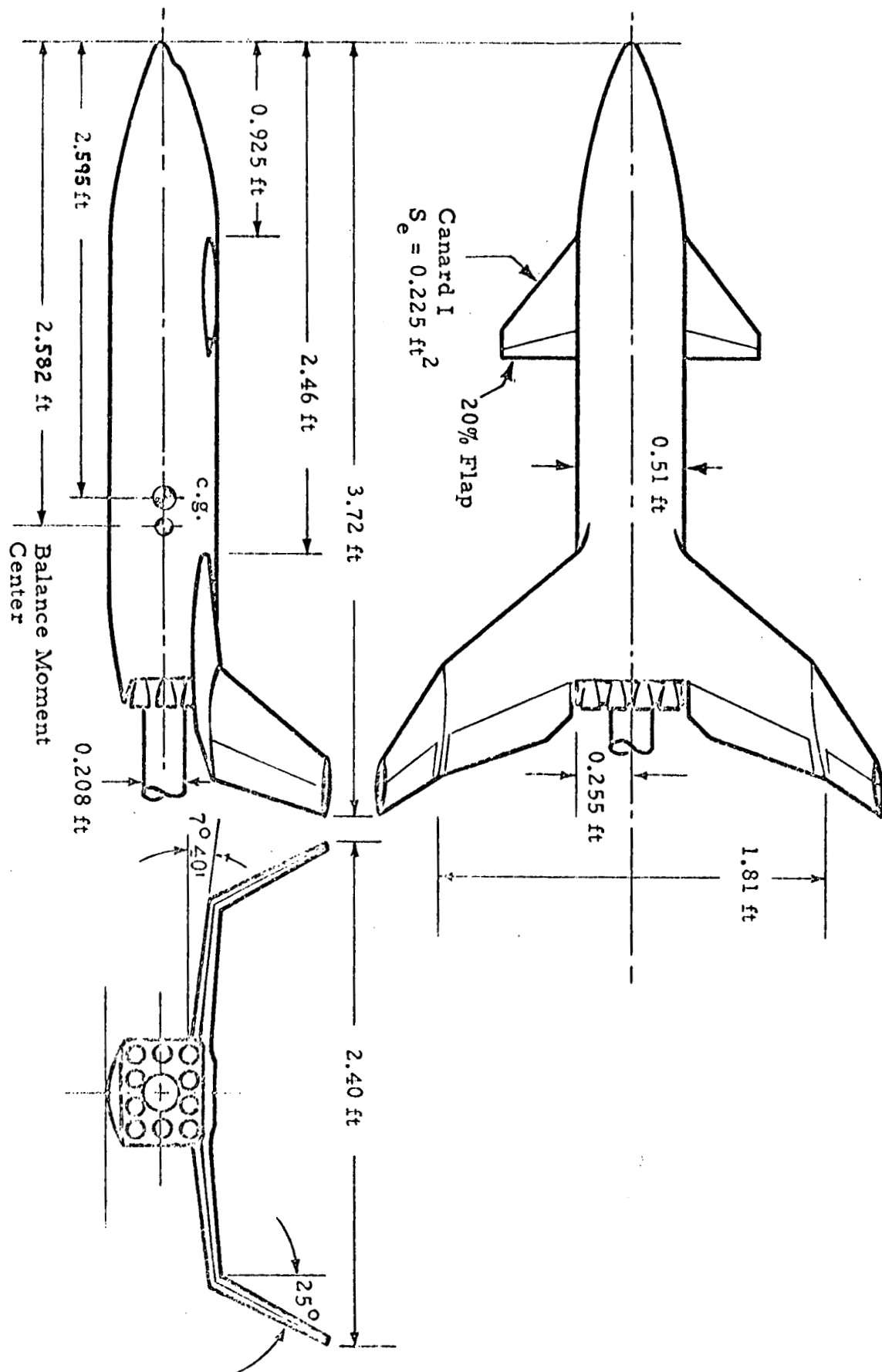
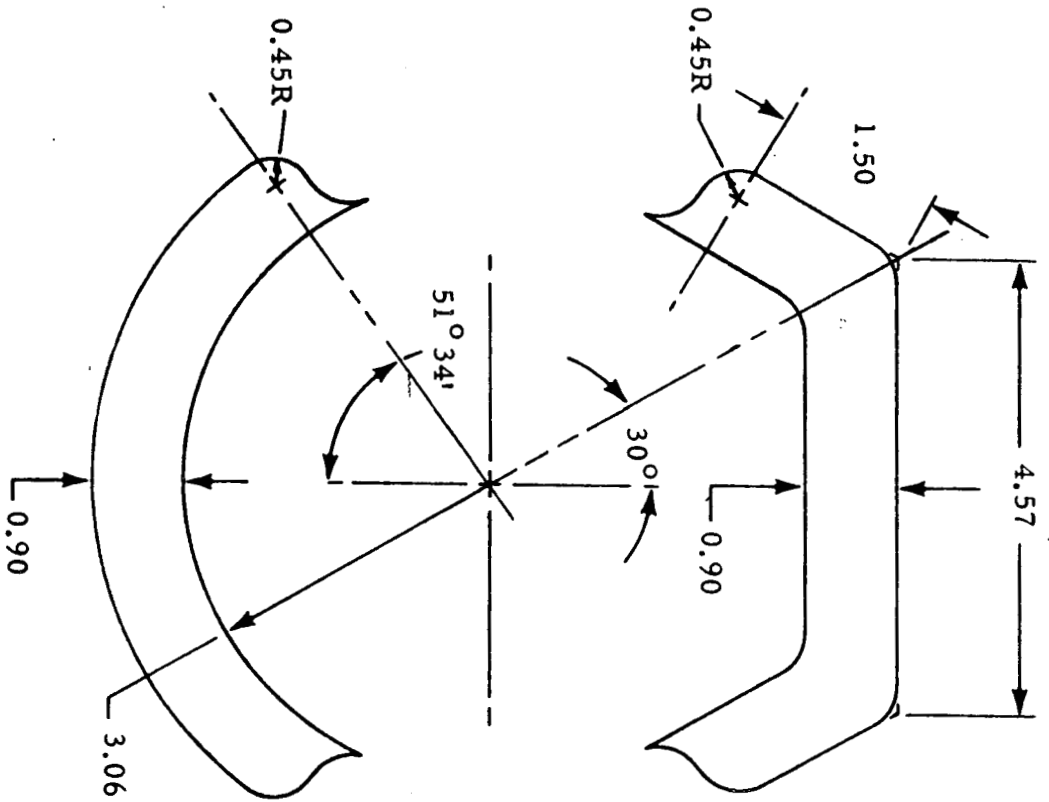


Fig.2.- General Arrangement of a Typical High Wing — High Canard Configuration

Top Body Mount



Bottom Body Mount

Note: All dimensions are in inches (model scale)

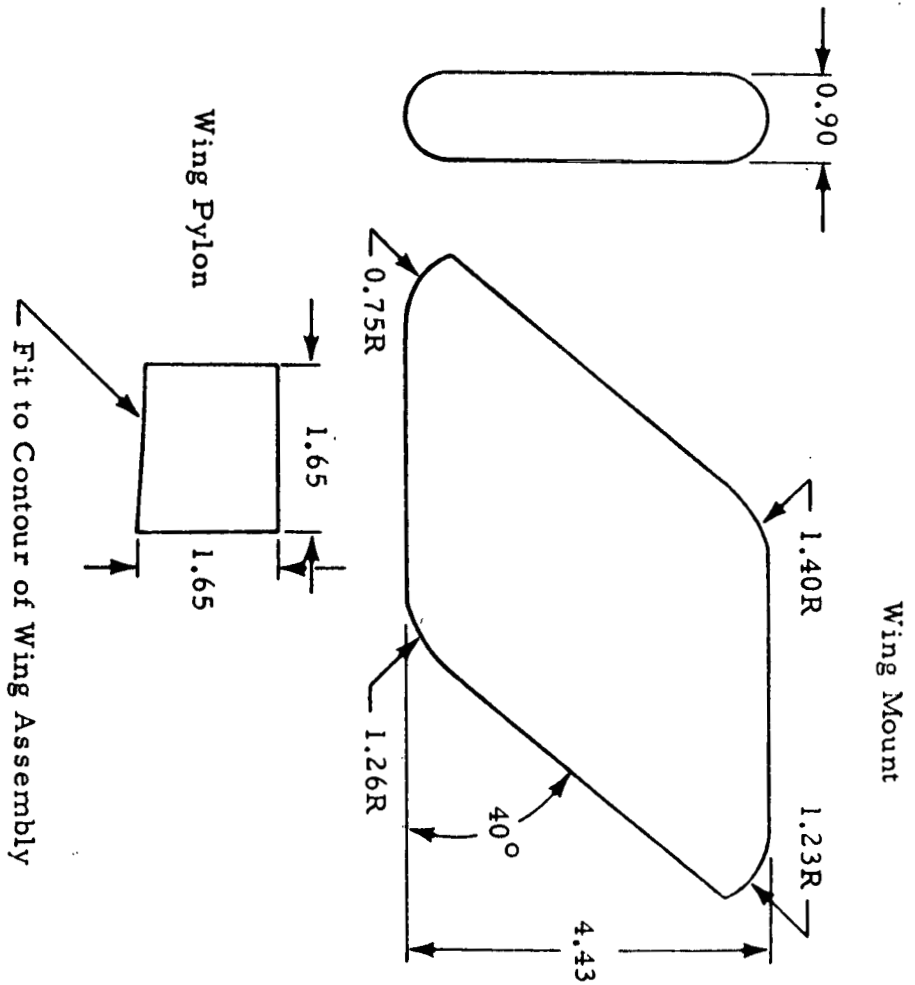


Figure 3. - Sketch of Dummy Engine Pods

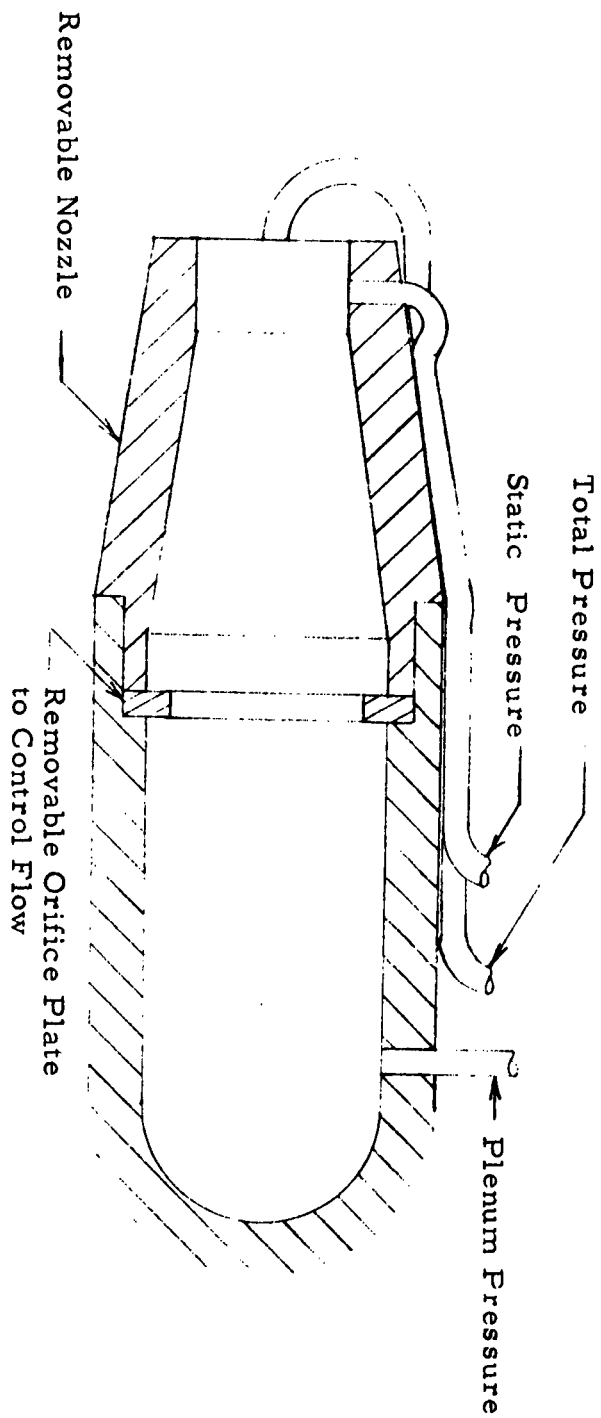


Figure 4. - Nozzle Instrumentation

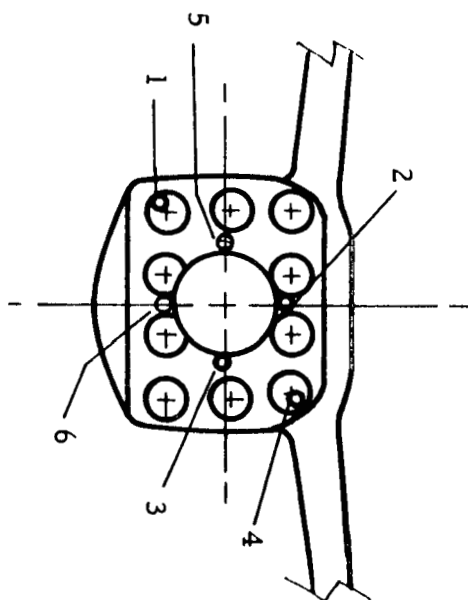
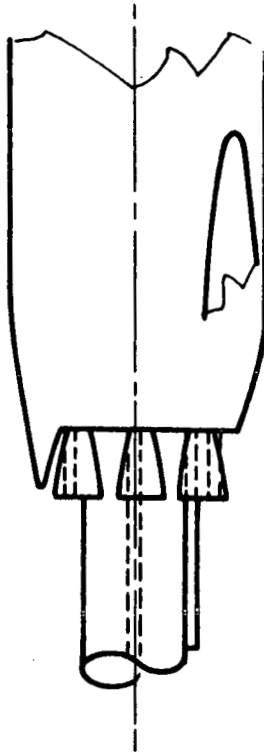
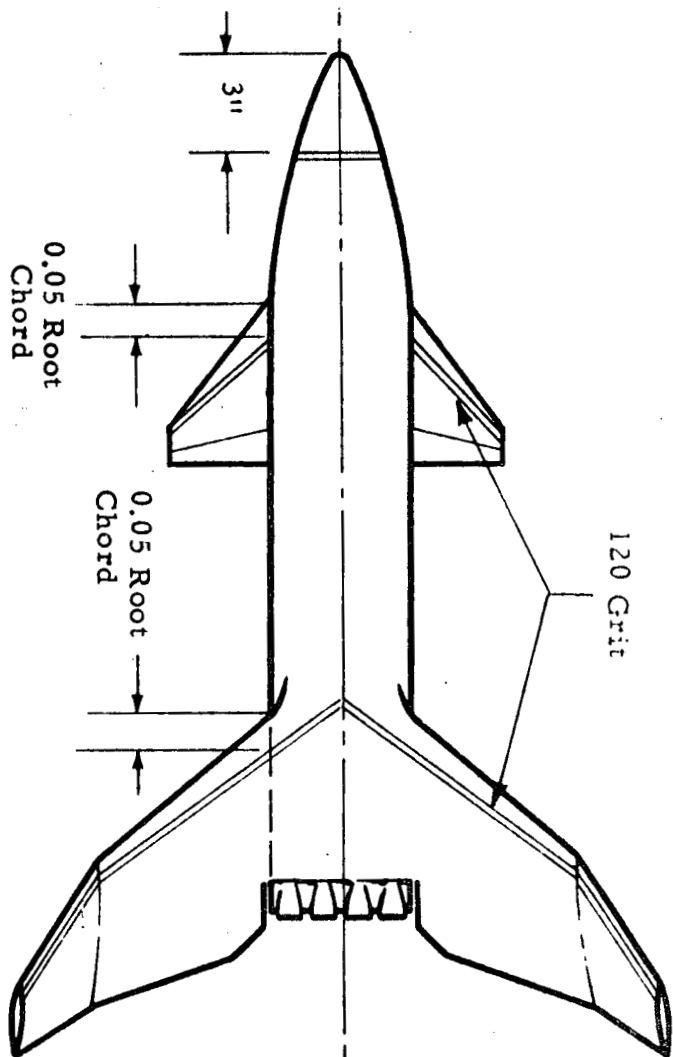


Figure 5. - Location and Identification of Base Pressure Tubes



Note: Grit is Carborundum
All strips are 1/8" wide

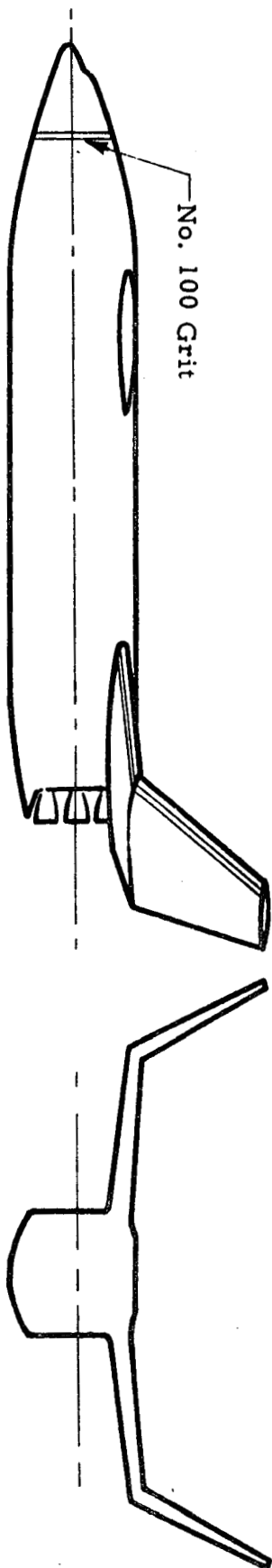


Figure 6. - Typical Transition Grit Installation on Body, Wing and Canard

Figure 7. Configuration B1C2F2W1V1G3

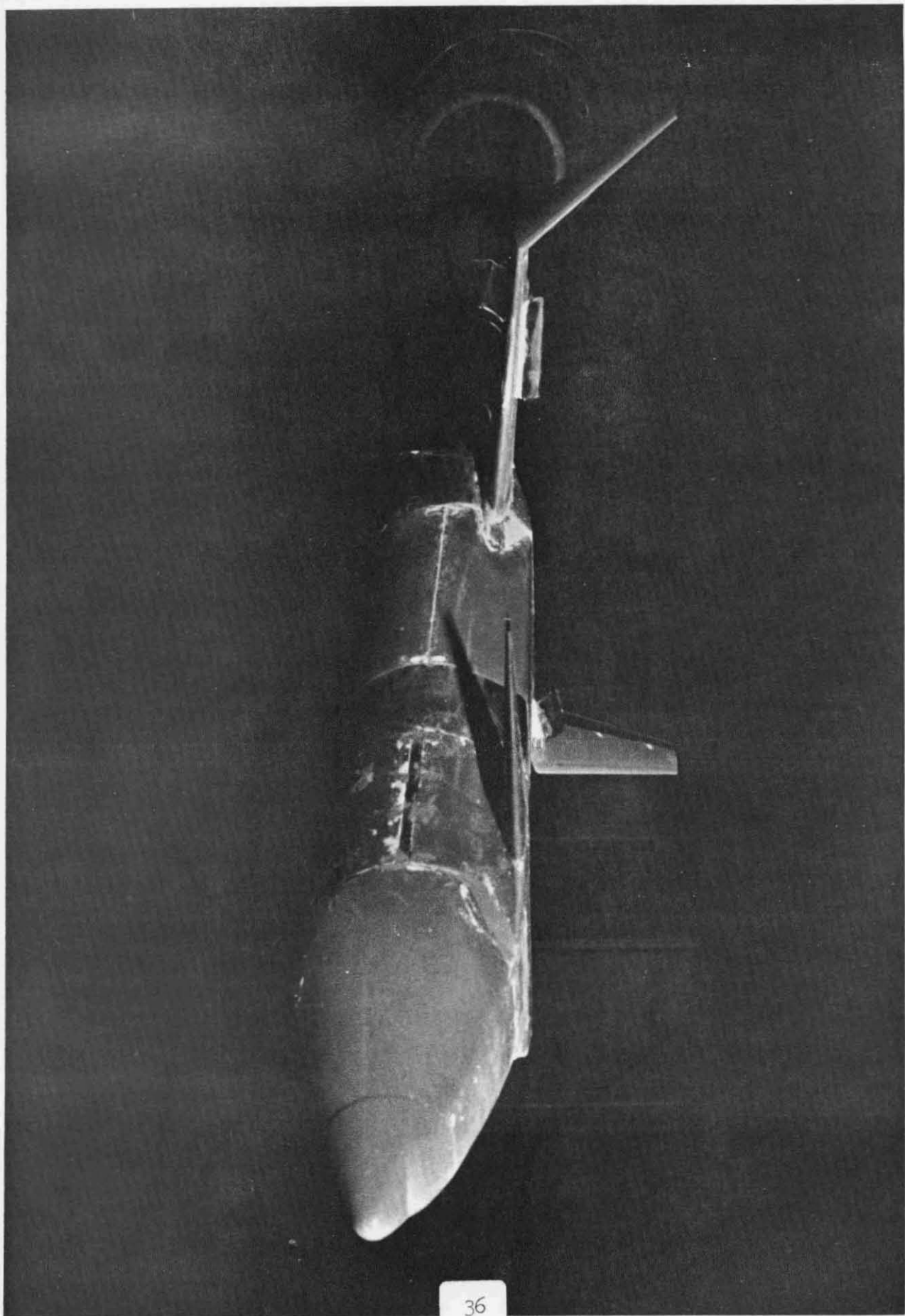


Figure 8. Configuration BIC2F2W1V1G3P

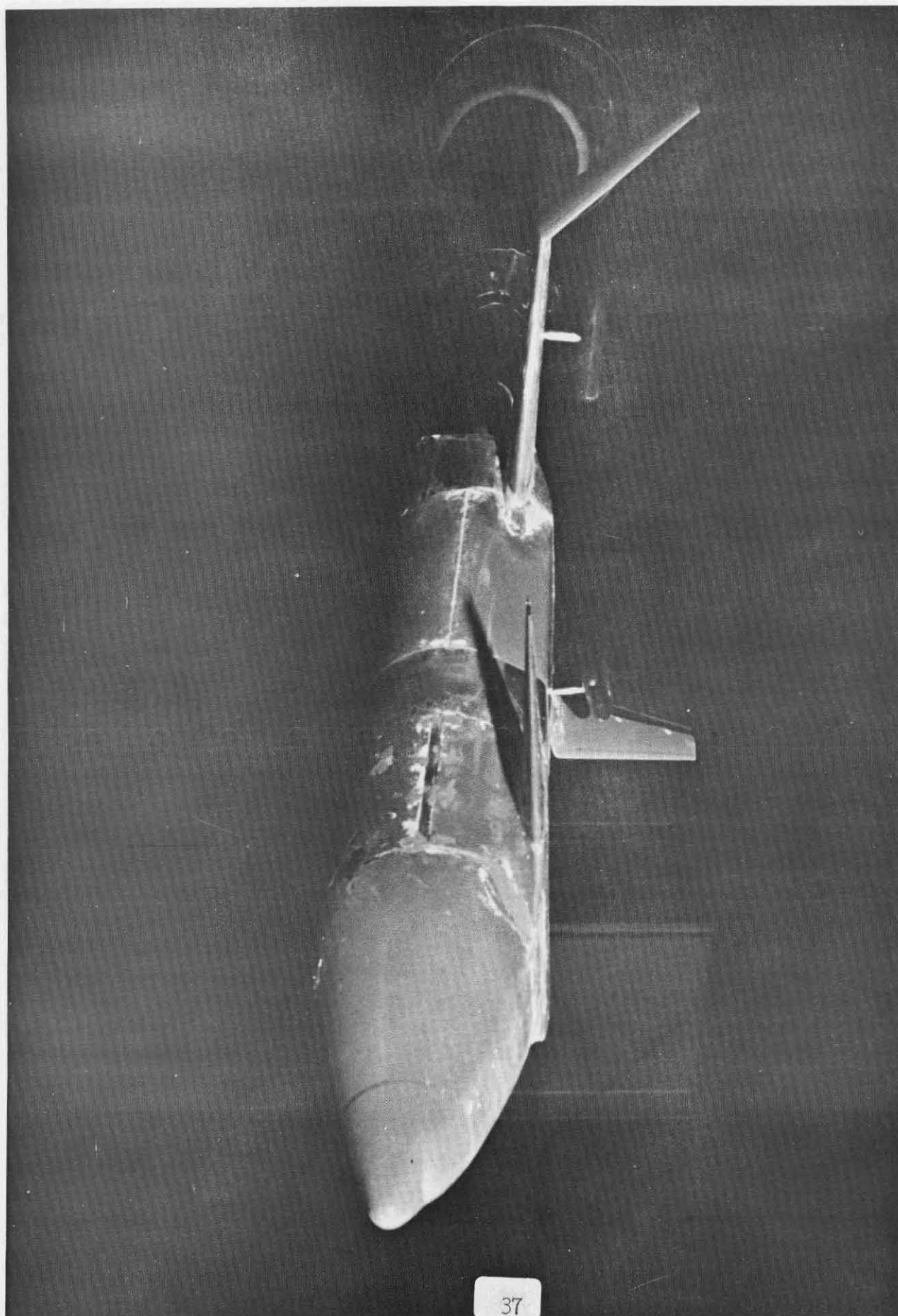


Figure 9. Configuration B1C2F2M1V1G1 High Wing - Low Canard

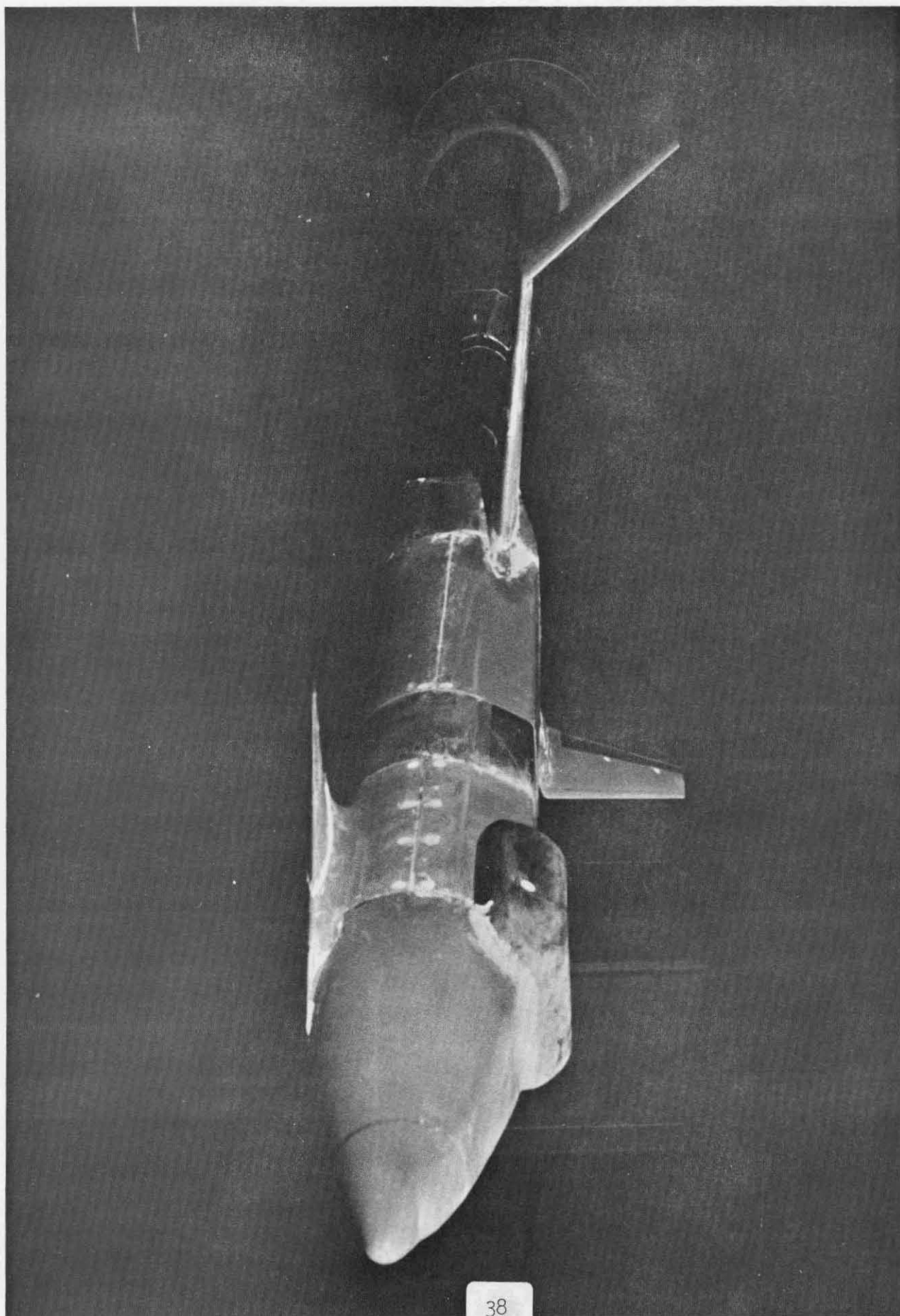


TABLE IV.

MODEL COMPONENT: BODY - B1GENERAL DESCRIPTION: Baseline MDAC booster body, 256-19A-X
X = total length is 229 vs 241.7 for 19A

DRAWING NUMBER:

USRX A152011-ADIMENSIONS:FULL-SCALEMODEL SCALE

Length

229 ft3.453 ft

Max. Width

34 ft0.51 ft

Max. Depth

34 ft0.51 ft

Fineness Ratio

Area

Max. Cross-Sectional

907.92 ft²0.204 ft²

Planform

Wetted

Base

high wing

866.67 ft²0.195 ft²

Low wing

893.21 ft²0.201 ft²

TABLE V.

MODEL COMPONENT: C2GENERAL DESCRIPTION: Paralle small canard

DRAWING NUMBER:

NSRDC A-152018-5DIMENSIONS:FULL-SCALEMODEL SCALETOTAL DATA

Area

Planform

2235 ft²0.503 ft²

Wetted

Span (equivalent)

72.6 ft

1.09 ft

Aspect Ratio

2.36

2.36

Rate of Taper

Taper Ratio

.118

.118

Dihedral Angle, degrees

0

0

Incidence Angle, degrees

3° 15'

3° 15'

Aerodynamic Twist, degrees

0

0

Toe-In Angle

Cant Angle

Sweep Back Angles, degrees

Leading Edge

53°

53°

Trailing Edge

0

0

0.25 Element Line

Chords:

Root (Wing Sta. 0.0)

55. ft

.825 ft

Tip, (equivalent)

6.47 ft

.097 ft

MAC, inches

Fus. Sta. of .25 MAC

W.P. of .25 MAC

Airfoil Section

Root

64A010

64A010

Tip

64A010

64A010

EXPOSED DATA

Area

750 ft²0.169 ft²

Span, (equivalent)

38.8 ft

0.581 ft

Aspect Ratio

2

2

Taper Ratio

0.2

0.2

Chords

Root

32.2 ft

0.434 ft

Tip

6.46 ft

0.097 ft

MAC

Fus. Sta. of .25 MAC

W.P. of .25 MAC

TABLE VI.

MODEL COMPONENT: F2 WITH CANARD C2

GENERAL DESCRIPTION: _____

DRAWING NUMBER: _____

<u>DIMENSIONS:</u>	<u>FULL-SCALE</u>	<u>MODEL SCALE</u>
Area	<u>300 ft²</u>	<u>0.0676 ft²</u>
Span (equivalent)	<u>38.8 ft</u>	<u>0.581 ft</u>
Inb'd equivalent chord	<u>12.9 ft</u>	<u>0.1936 ft</u>
Outb'd equivalent chord	<u>2.59 ft</u>	<u>0.0388 ft</u>
Ratio movable surface chord/ total surface chord		
At Inb'd equiv. chord	<u>0.4</u>	<u>0.4</u>
At Outb'd equiv. chord	<u>0.4</u>	<u>0.4</u>
Sweep Back Angles, degrees		
Leading Edge	<u>28°</u>	<u>28°</u>
Tailing Edge	<u>0</u>	<u>0</u>
Hingeline	<u>—</u>	<u>—</u>
Area Moment (Normal to hinge line)	<u>—</u>	<u>—</u>

TABLE VII.

MODEL COMPONENT: VIGENERAL DESCRIPTION: Booster wing tip vertical fin(Dimensions given are for each tip)DRAWING NUMBER: NSRDC A152027-1,4DIMENSIONS:FULL-SCALEMODEL SCALETOTAL DATA

Area		
Planform	1010 ft ²	.226 ft ²
Wetted		
Semi-Span (equivalent)	33.90 ft	.582 ft
Aspect Ratio	1.5	1.5
Rate of Taper		
Taper Ratio	.467	.467
Diehedral Angle, degrees	29°	29°
Incidence Angle, degrees	3°	3°
Aerodynamic Twist, degrees	0	0
Toe-In Angle	0	0
Cant Angle	0	0
Sweep Back Angles, degrees		
Leading Edge	40°	40°
Trailing Edge	19°31'	19°31'
0.25 Element Line		
Chords:		
Root (Wing Sta. 0.0)	35.35 ft	.530 ft
Tip, (equivalent)	16.50 ft	.297 ft
MAC		
Fus. Sta. of .25 MAC		
W.P. of .25 MAC		
B.L. of .25 MAC		
Airfoil Section		
Root	64A010	64A010
Tip	64A009	64A009
<u>EXPOSED DATA</u>		

Area		
Span, (equivalent)		
Aspect Ratio		
Taper Ratio		
Chords		
Root		
Tip		
MAC		
Fus. Sta. of .25 MAC		
W.P. of .25 MAC		
B.L. of .25 MAC		

TABLE VIII.

MODEL COMPONENT: V2GENERAL DESCRIPTION: Booster wing tip extension(Dimensions are for each tip)DRAWING NUMBER: NSRDC A 152030-1

DIMENSIONS: FULL-SCALE MODEL SCALE

TOTAL DATA

Area		
Planform	<u>671 ft²</u>	<u>0.15 ft²</u>
Wetted		
Span (equivalent)	<u>21.9 ft</u>	<u>.329 ft</u>
Aspect Ratio	<u>0.72</u>	<u>0.72</u>
Rate of Taper		
Taper Ratio	<u>0.70</u>	<u>0.70</u>
Diehedral Angle, degrees	<u>7°40' 15"</u>	<u>7°40' 15"</u>
Incidence Angle, degrees	<u>0° 3'</u>	<u>0° 3'</u>
Aerodynamic Twist, degrees		
Toe-In Angle		
Cant Angle		
Sweep Back Angles, degrees		
Leading Edge	<u>40°</u>	<u>40°</u>
Trailing Edge	<u>19°31'</u>	<u>19°31'</u>
0.25 Element Line		
Chords:		
Root (Wing Sta. 0.0)	<u>35.9 ft</u>	<u>.538 ft</u>
Tip, (equivalent)	<u>25.2 ft</u>	<u>.378 ft</u>
MAC		
Fus. Sta. of .25 MAC		
W.P. of .25 MAC		
B.L. of .25 MAC		
Airfoil Section		
Root	<u>64A010</u>	<u>64A010</u>
Tip	<u>64A010</u>	<u>64A010</u>

EXPOSED DATA

Area		
Span, (equivalent)		
Aspect Ratio		
Taper Ratio		
Chords		
Root		
Tip		
MAC		
Fus. Sta. of .25 MAC		
W.P. of .25 MAC		
B.L. of .25 MAC		

TABLE IX.

MODEL COMPONENT: W1GENERAL DESCRIPTION: Baseline bracket wing 256-14DRAWING NUMBER: NSRDC A152024-1DIMENSIONS:FULL-SCALEMODEL SCALETOTAL DATA

Area		
Planform	6020 ft ²	1.355 ft ²
Wetted	—	—
Span (equivalent)	120.67 ft	1.01 ft
Aspect Ratio	2.42	2.42
Rate of Taper	—	—
Taper Ratio	.517	.517
Diehedral Angle, degrees	7°40' 15"	7°40' 15"
Incidence Angle, degrees	0° 3'	0° 3'
Aerodynamic Twist, degrees	—	—
Toe-In Angle	0°	0°
Cant Angle	—	—
Sweep Back Angles, degrees	—	—
Leading Edge	40°	40°
Trailing Edge	12°31'	12°31'
0.25 Element Line	—	—
Chords:		
Root (Wing Sta. 0.0)	64.55 ft	.969 ft
Tip, (equivalent)	35.4 ft	.53 ft
MAC	—	—
Fus. Sta. of .25 MAC	—	—
W.P. of .25 MAC	—	—
B.L. of .25 MAC	—	—
Airfoil Section	—	—
Root	64A010	64A010
Tip	64A010	64A010

EXPOSED DATA

Area	3960 ft ²	.891 ft ²
Span, (equivalent)	86.8 ft	1.30 ft
Aspect Ratio	1.89	1.89
Taper Ratio	.627	.627
Chords		
Root	56.4 ft	.845 ft
Tip	35.4	.53 ft
MAC	—	—
Fus. Sta. of .25 MAC	—	—
W.P. of .25 MAC	—	—
B.L. of .25 MAC	—	—

NOMENCLATURE

(General)

<u>SYMBOL</u>	<u>SADSAC SYMBOL</u>	<u>DEFINITION</u>
α	ALPHA	angle of attack, angle between the projection of the wind X_w -axis on the body X, Z-plane and the body X-axis; degrees
β	BETA	sideslip angle, angle between the wind X_w -axis and the projection of this axis on the body X-Z-plane; degrees
ψ	PSI	yaw angle, angle of rotation about the body Z-axis, positive when the positive X-axis is rotated toward the positive Y-axis; degrees
ϕ	PHI	roll angle, angle of rotation about the body X-axis, positive when the positive Y-axis is rotated toward the positive Z-axis; degrees
ρ		air density; K_g/m^3 , slugs/ft ³
a		speed of sound; m/sec, ft/sec
V		speed of vehicle relative to surrounding atmosphere; m/sec, ft/sec
q	Q(PST) Q(PST)	dynamic pressure; $1/2\rho V^2$, psi, psf
M	MACH	Mach number; V/a
RN/L	RN/L	Reynolds number per unit length; million/ft
p		static pressure; psi
P		total pressure; psi
C_p	CP	pressure coefficient; $(p-p_\infty)/q$

NOMENCLATURE (Continued)

Reference & C. G. Definitions

<u>SYMBOL</u>	<u>SADSAC SYMBOL</u>	<u>DEFINITION</u>
S		wing area; m^2 , ft^2
S	SREF	reference area; m^2 , ft^2
\bar{c}		wing mean aerodynamic chord or reference chord; m, ft, in (see l_{ref} or LREF)
l_{ref}	LREF	reference length; m, ft, in.; (see \bar{c})
b_{ref}	BREF	wing span or reference span; m, ft, in
A_b		base area; m^2 , ft^2 , in^2
c. g.		center of gravity
MRP	MRP	abbreviation for moment reference point
	XMRP	abbreviation for moment reference point on X-axis
	YMRP	abbreviation for moment reference point on Y-axis
	ZMRP	abbreviation for moment reference point on Z-axis

NOMENCLATURE (Continued)

Axis System General

SYMBOL

DEFINITION

F

force; F, lbs

M

moment; M, in-lb

Subscript

Definition

N

normal force

A

axial force

L

lift force

D

drag force

Y

force or moment about the Y axis

Z

moment about the Z axis

X

moment about the X axis

s

stability axis system

w

wind axis system

ref

reference conditions

∞

free stream conditions

t

total conditions

b

base

NOMENCLATURE (Continued)
Body & Stability Axis System

<u>SYMBOL</u>	<u>SADSAC SYMBOL</u>	<u>DEFINITION</u>
<u>Body Axis System</u>		
C_N	CN	normal force coefficient; F_N/qS
C_A	CA	axial force coefficient; F_A/qS
C_{A_b}	CAB	base axial force coefficient; $\begin{bmatrix} -1 \end{bmatrix} \begin{bmatrix} (p_b - p_\infty)/q \end{bmatrix} (A_b/S)$
C_{A_f}	CAF	forebody axial force coefficient; $C_A - C_{A_b}$
C_n	CYN	yawing moment coefficient; $M_Z/qS b_{ref}$
C_l	CBL	rolling moment coefficient; $M_X/qS b_{ref}$
<u>Common to Both Axis Systems</u>		
C_m	CLM	pitching moment coefficient; $M_Y/qS l_{ref}$
C_y	CY	side force coefficient; F_Y/qS
<u>Stability Axis System</u>		
C_L	CL	lift force coefficient; F_L/qS
C_D	CD	drag force coefficient; F_D/qS
C_{D_b}	CDB	base drag coefficient
C_{D_f}	CDF	forebody drag coefficient; $C_D - C_{D_b}$
C_n	CLN	yawing moment coefficient; $M_{Z,s}/qS b_{ref}$
C_l	CSL	rolling moment coefficient; $M_{X,s}/qS b_{ref}$
L/D	L/D	lift-to-drag ratio; C_L/C_D
L/D_f	L/DF	lift to forebody drag ratio; C_L/C_{D_f}

NOMENCLATURE (Continued)

Surface Definitions

<u>SYMBOL</u>	<u>SADSAC SYMBOL</u>	<u>DEFINITION</u>
i_t	HORIZT	horizontal tail incidence; positive when trailing edge down; degrees
δ		symmetrical surface deflection angle; degrees; positive deflections are:
	AILRON	aileron - total aileron deflection; (left aileron - right aileron)/2
	CANARD	canard - trailing edge down
	ELEVON	elevon - trailing edge down
	ELEVTR	elevator - trailing edge down
	FLAP	flap - trailing edge down
	RUDDER	rudder - trailing edge to the left
	SPOILR	spoiler - trailing edge down
	TAB	tab - trailing edge down with respect to control surface
δ		antisymmetrical surface deflection angle, degrees; positive trailing edge down:
	AIL-L	left aileron - trailing edge down
	AIL-R	right aileron - trailing edge down
	ELVN-L	left elevon - trailing edge down
	ELVN-R	right elevon - trailing edge down
	SPLR-L	left spoiler - trailing edge down
	SPLR-R	right spoiler - trailing edge down

<u>SURFACE SUBSCRIPTS</u>	<u>DEFINITION</u>
a	aileron
b	base
c	canard
e	elevator or elevon
f	flap
r	rudder or ruddervator
s	spoiler
t	tail

ADDITIONS TO SADSAC NOMENCLATURE

NSRDC 3210

<u>SYMBOL</u>	<u>SADSAC SYMBOL</u>	<u>DEFINITION</u>
\dot{m}	MSFLOW	nozzle mass flow rate, pounds mass per sec.
$C_{L\alpha}$	$D(CL)/DA$	derivative of lift coefficient with respect to alpha, ($\alpha = 5^\circ$); per degree.
$C_{m\alpha}$	$D(CIM)/DA$	derivative of pitching moment coefficient with respect to alpha, ($\alpha = 5^\circ$); per degree.
dC_m/dC_L	CIM/CL $X/LREF$	derivative of pitching moment coefficient with respect to the lift coefficient, $CIM/CL = D(CIM)/DA / D(CL)/DA$
$C_{D\alpha=0}$	CDALFO	drag coefficient at zero angle of attack
$C_{L\delta_e}$	DCL/DE	rate of change of total lift coefficient with elevator deflection; degrees.
$C_{m\delta_e}$	DCIMDE	rate of change of total pitching moment coefficient with elevator deflection; degrees.
$C_{D\delta_e}$	DCD/DE	rate of change of total drag coefficient with elevator deflection; degrees.
$C_{L\delta_c}$	DCL/DC	rate of change of total lift coefficient with canard deflection; per degree.
$C_{m\delta_c}$	DCIMDC	rate of change of total pitching moment coefficient with canard deflection; degrees.
$C_{D\delta_c}$	DCD/DC	rate of change of total drag coefficient with canard deflection; degrees

ADDITIONS TO SADSAC NOMENCLATURE
(Continued)

NSRDC 3210

<u>SYMBOL</u>	<u>SADSAC SYMBOL</u>	<u>DEFINITION</u>
$C_{Y\delta_r}$	DCY/DR	rate of change of total side force coefficient with rudder deflection; degrees.
$C_{n\delta_r}$	DCYNDR	rate of change of total yawing moment coefficient with rudder deflection; degrees.
$C_{l\delta_r}$	DCBLDR	rate of change of total rolling moment coefficient with rudder deflection; degrees.
$C_{D\delta_r}$	DCD/DR	rate of change of total drag coefficient with rudder deflection; degrees.
$C_{Y\delta_a}$	DCY/DA	rate of change of total side force coefficient with total aileron deflection; degrees.
$C_{n\delta_a}$	DCYNDA	rate of change of total yawing moment coefficient with total aileron deflection; degrees.
$C_{l\delta_a}$	DCBLDA	rate of change of total rolling moment coefficient with total aileron deflection; degrees.
$C_{D\delta_a}$	DCD/DA	rate of change of total drag coefficient with total aileron deflection; degrees

TABULATED DATA LISTING

A tabulated data listing, consisting of all aero data sets, both original and those created in arriving at the plotted material to be presented subsequently, is available as an addendum to this report. The tabular listing is made up in two sections:

- (a) a brief summary list of all data sets containing the identifier, the descriptor, and the resident dependent variables.
- (b) a full list of all data sets containing all resident or selected aerodynamic coefficients of the data sets as well as the above mentioned information.

The listing is currently sent on limited distribution to the following organizations:

NASA AMES	Mr. V. Stevens
NSRDC	Mr. D. Chadock
LMSC/HREC	Mr. D. Bradley

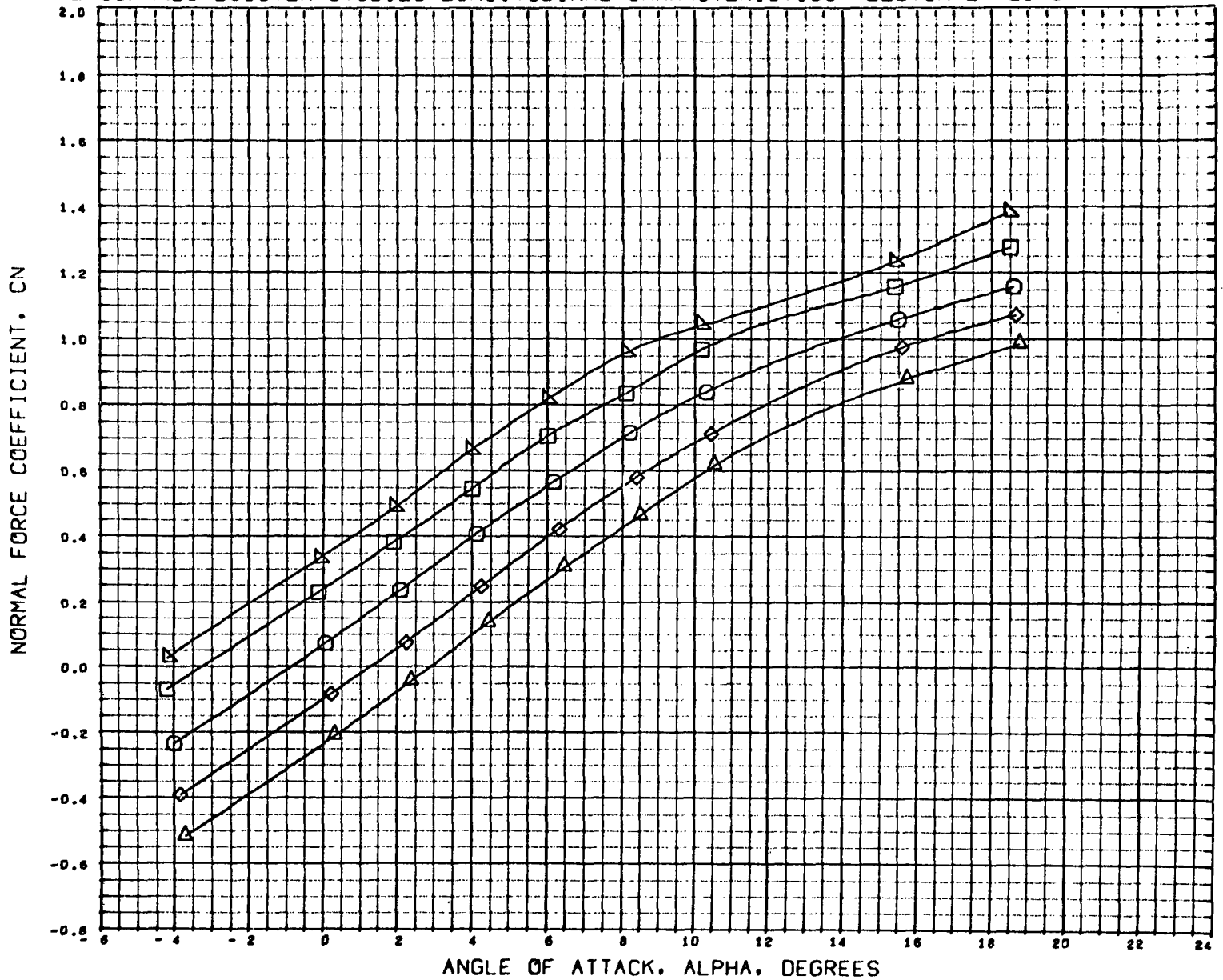
If copies of this listing are desired, please contact the above or the cognizant SADSAC personnel who, for this data, is:

Mr. W. R. Morgan
Department 2780
Chrysler Corporation Space Division
New Orleans, La. 70129

(504) 255-2304

P L O T T E D D A T A

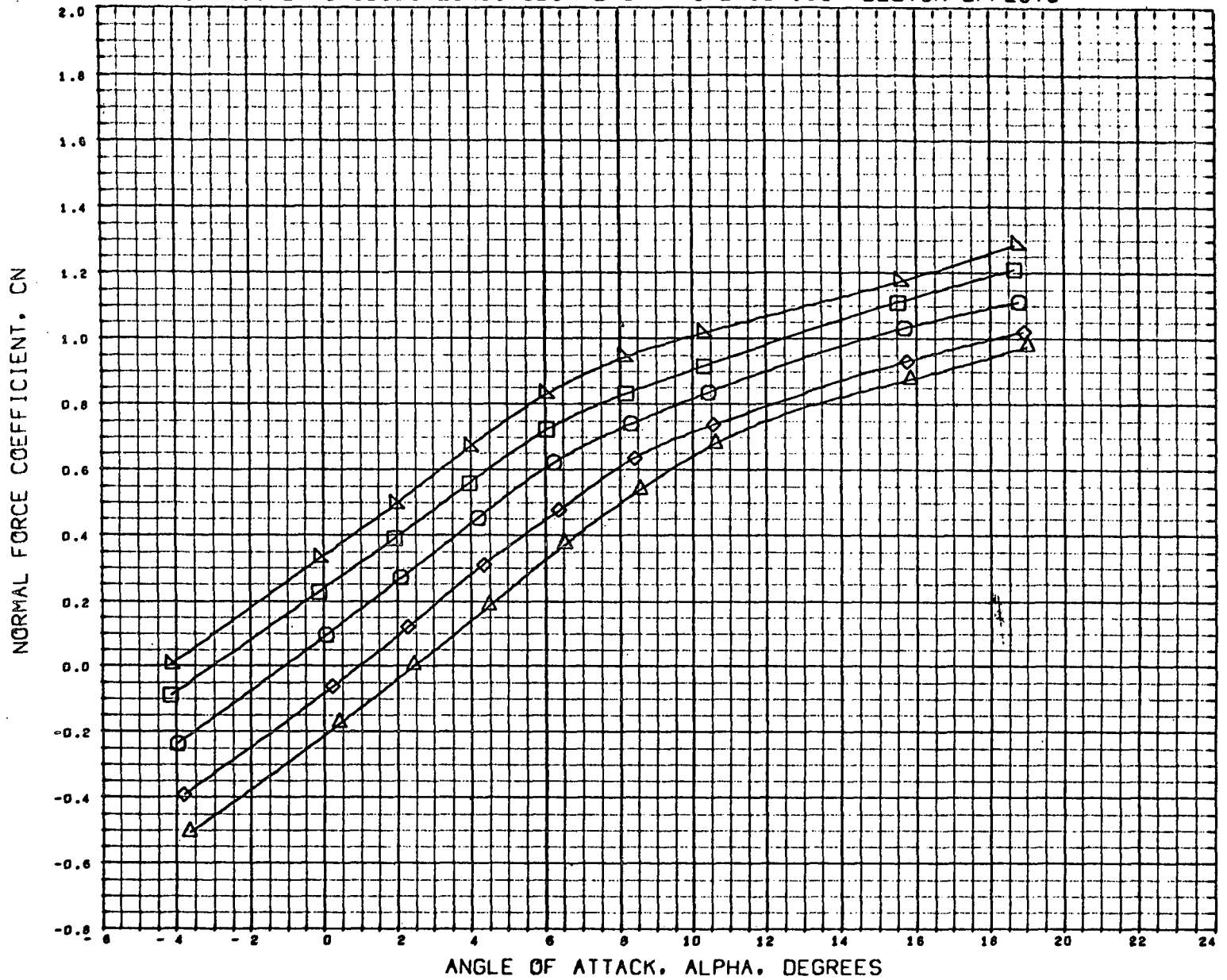
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3013)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF	1.3350 SQ.FT.
(RN3009)	□	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3001)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3005)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP	2.5950 FEET
(RN3017)	▽	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRP	0.0000 FEET
							ZMRP	0.0187 FEET
							SCALE	0.0150 SCALE

MACH 0.704

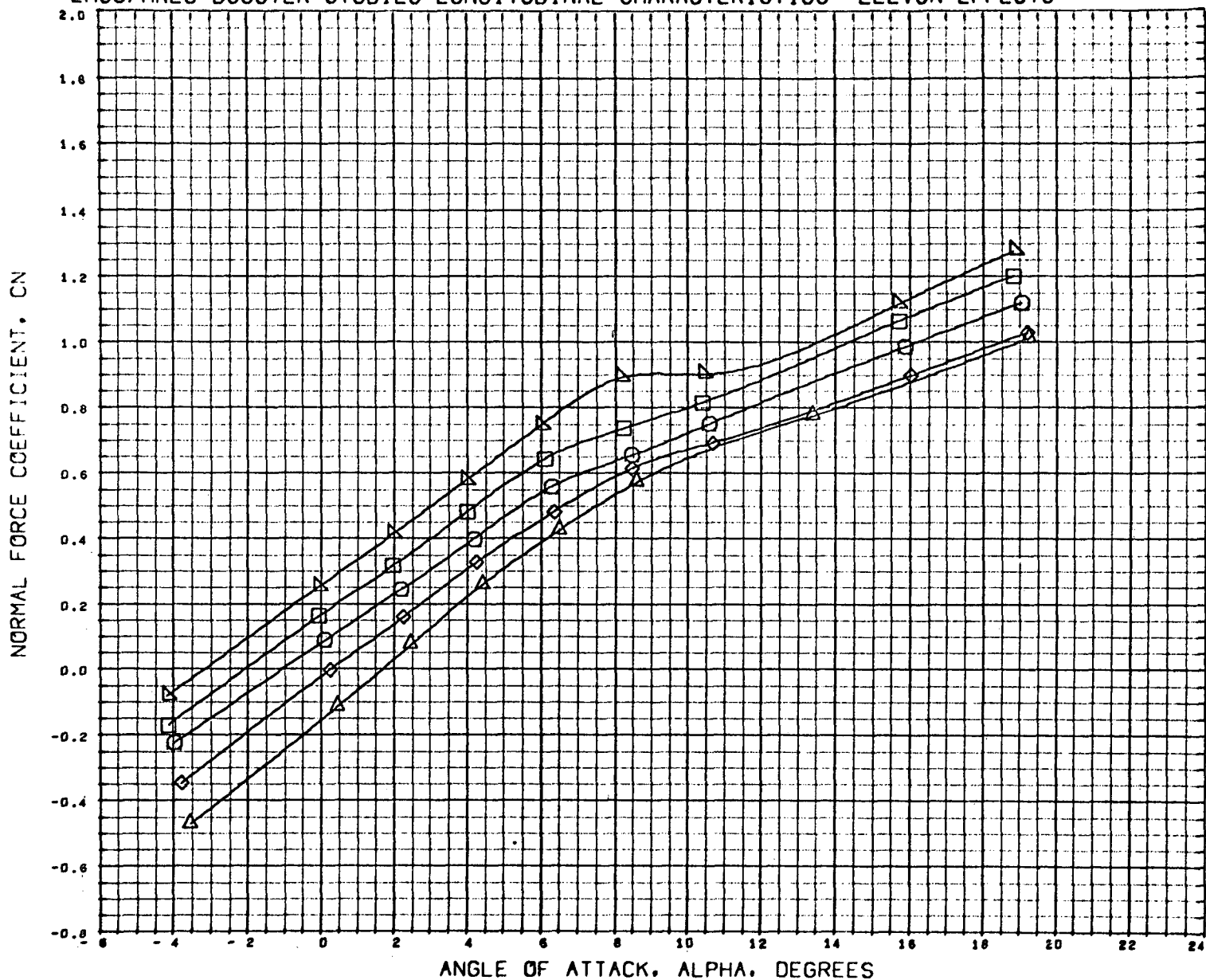
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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3013)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3009)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3003)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP	2.5950 FEET
(RN3017)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
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LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

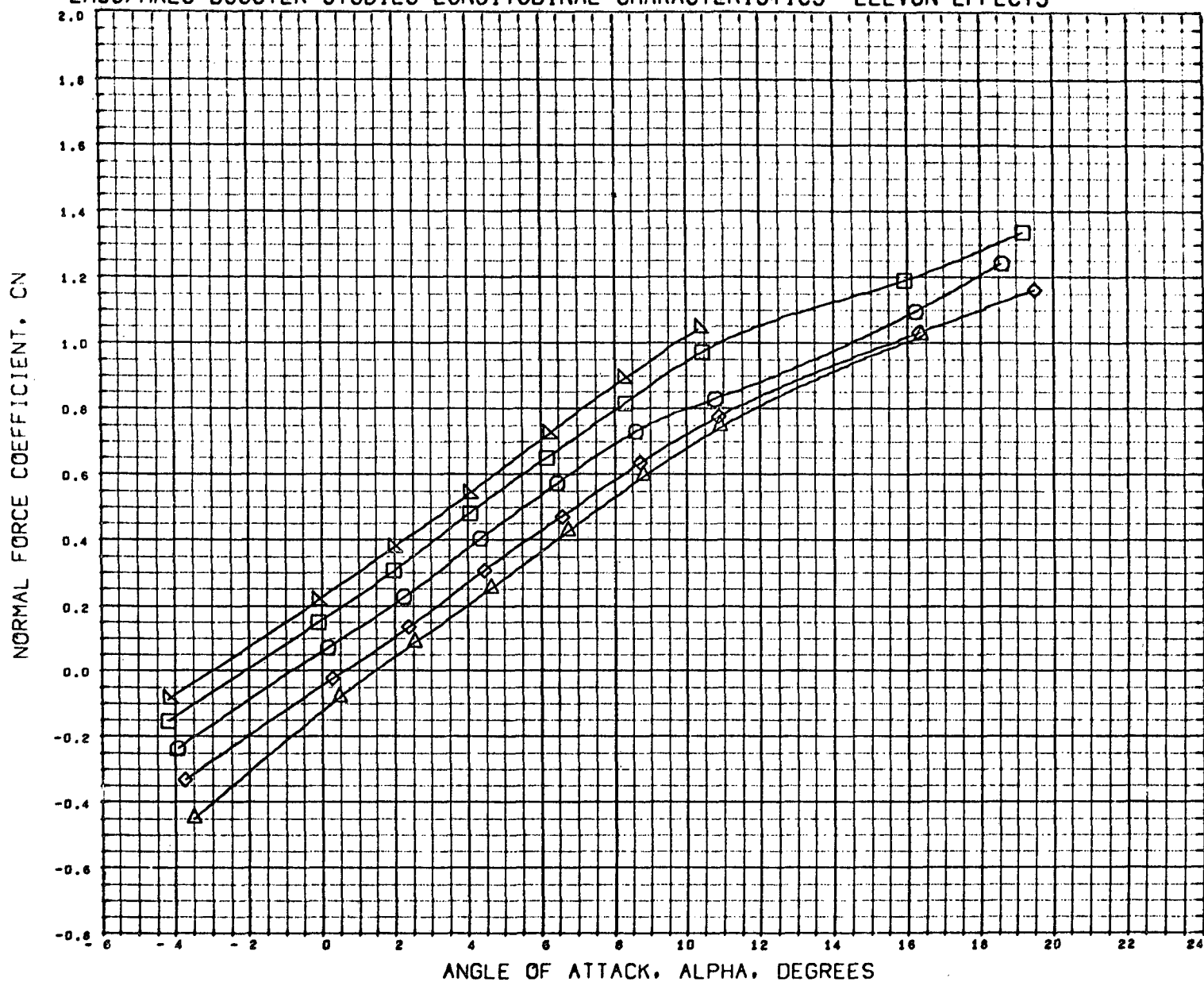


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(RN3009)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3005)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP	2.5930 FEET
(RN3017)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRP	0.0000 FEET
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MACH

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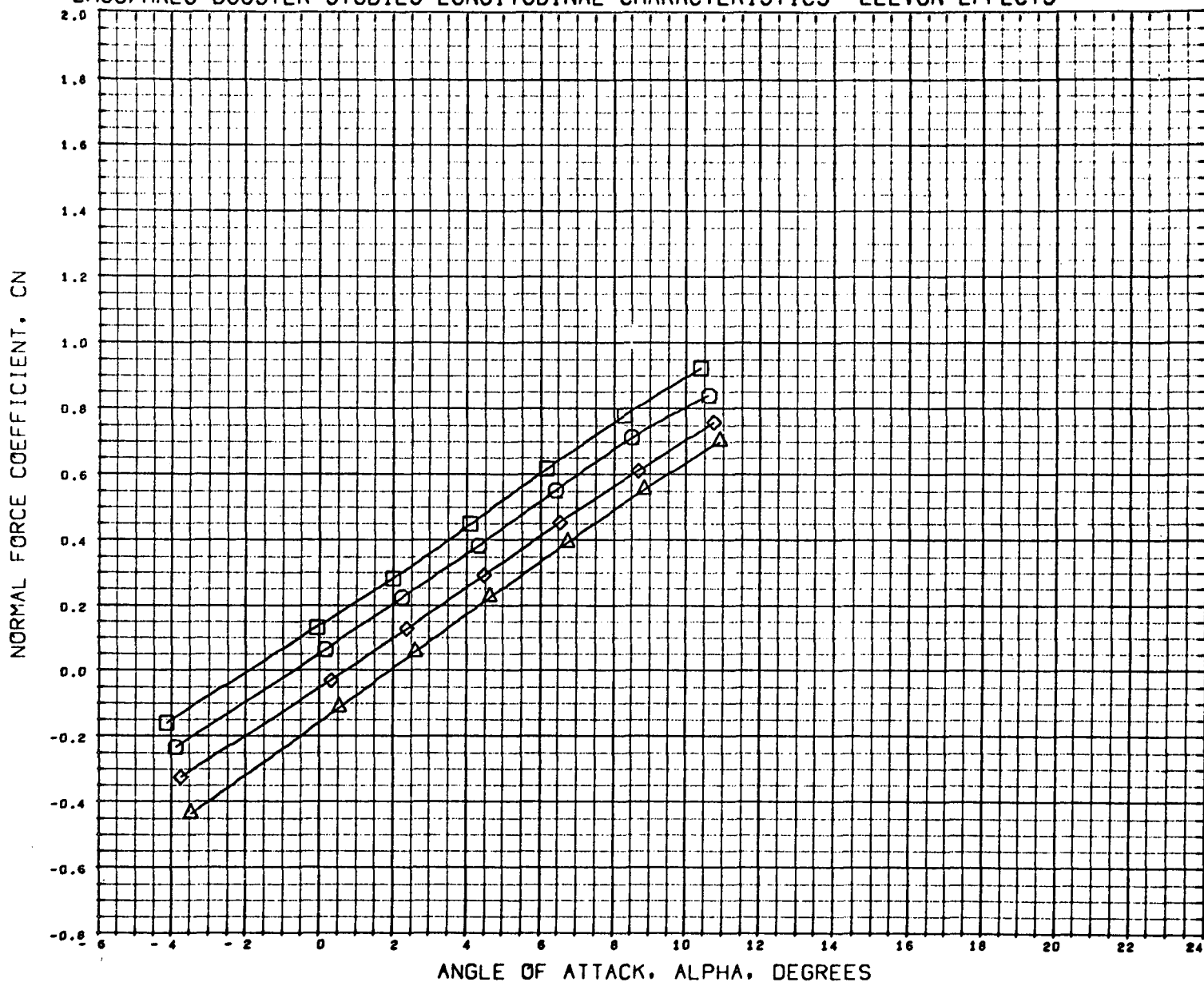
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3013)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3009)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3001)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3005)	□	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP	2.5950 FEET
(RN3017)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRP	0.0000 FEET
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MACH 1.003

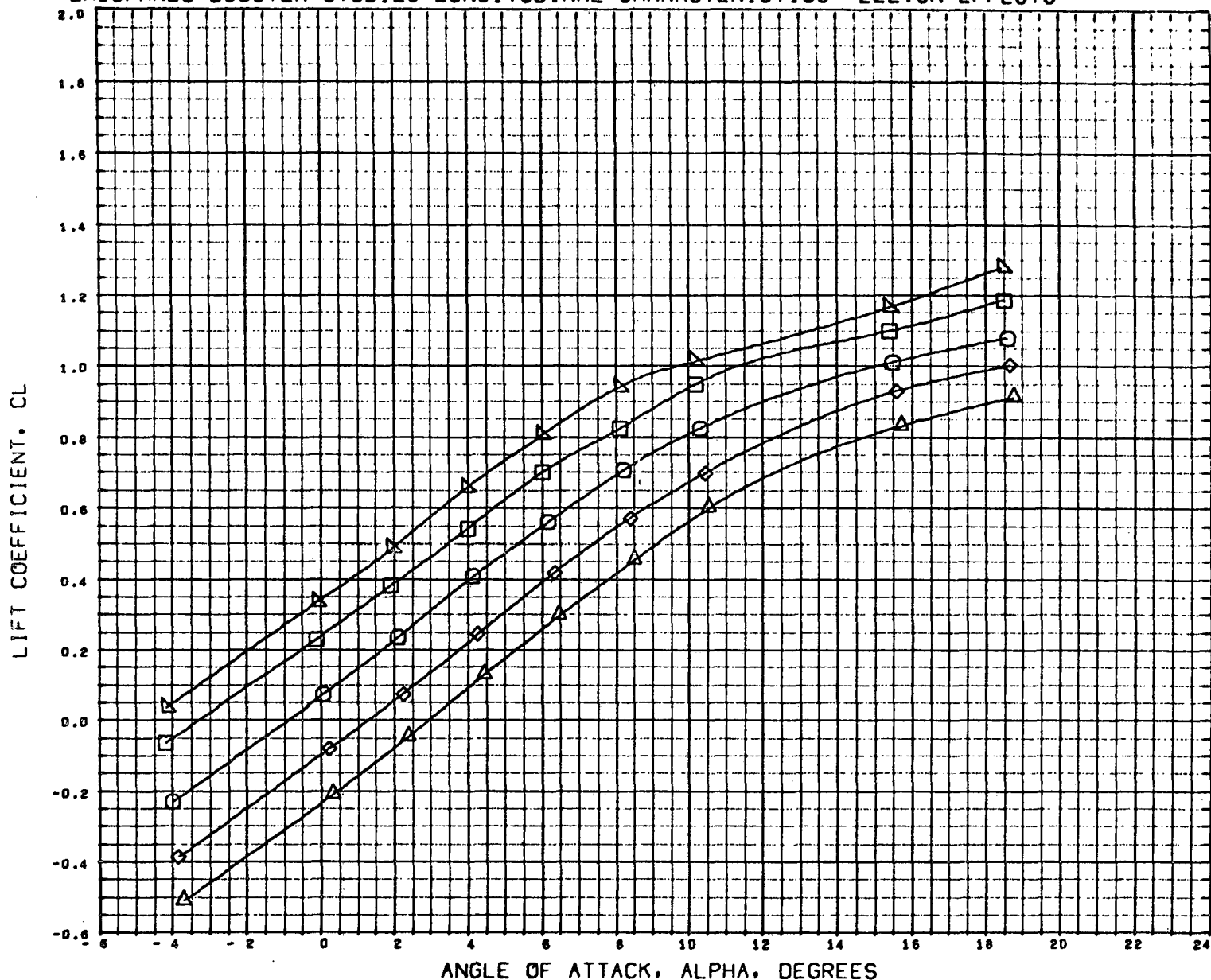
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DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3013)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3009)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3001)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
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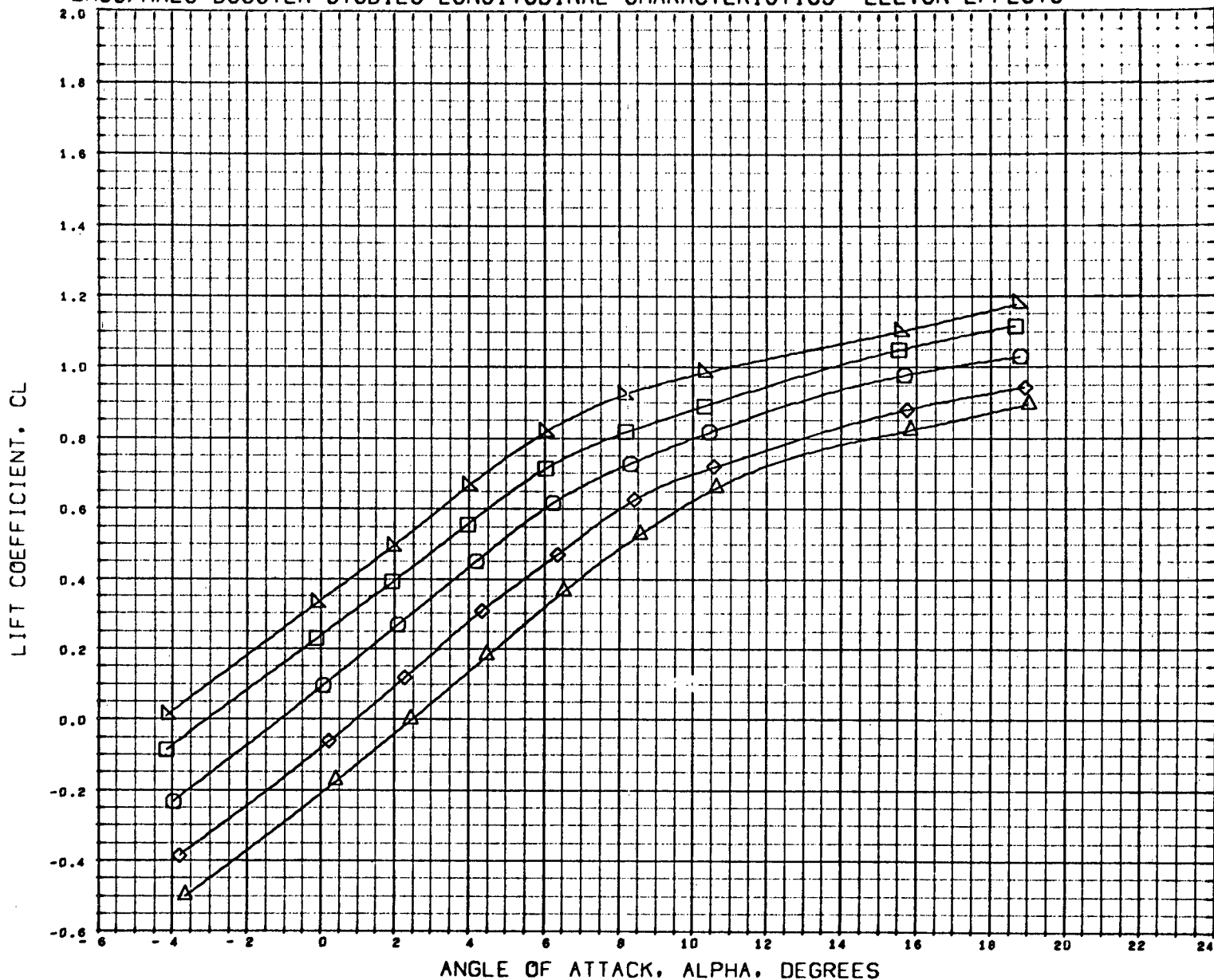
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(RN3001)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3005)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP	2.9950 FEET
(RN3017)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRP	0.0000 FEET
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MACH 0.704

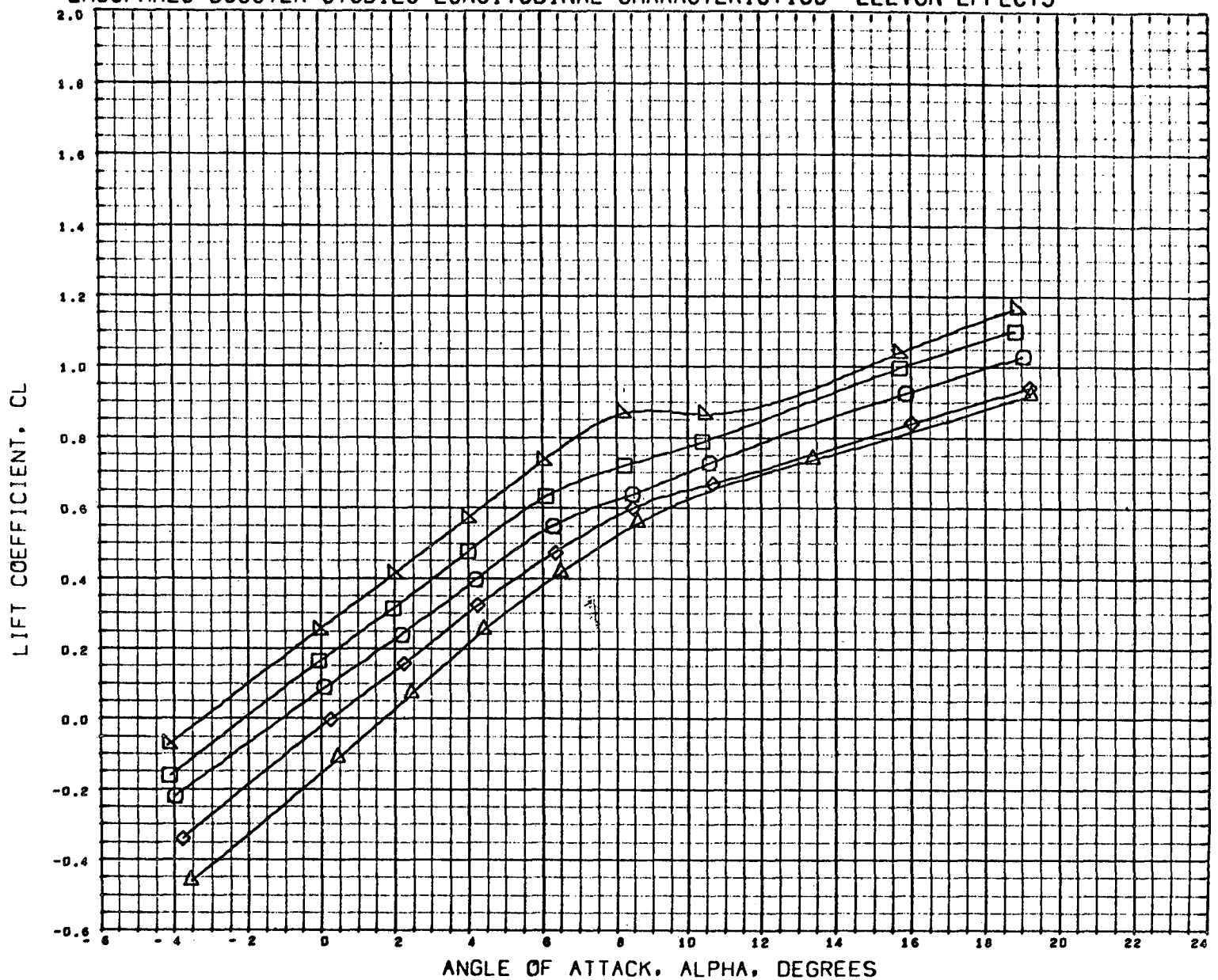
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DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3013)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3009)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3001)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3005)	□	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRF	2.5950 FEET
(RN3017)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRF	0.0000 FEET
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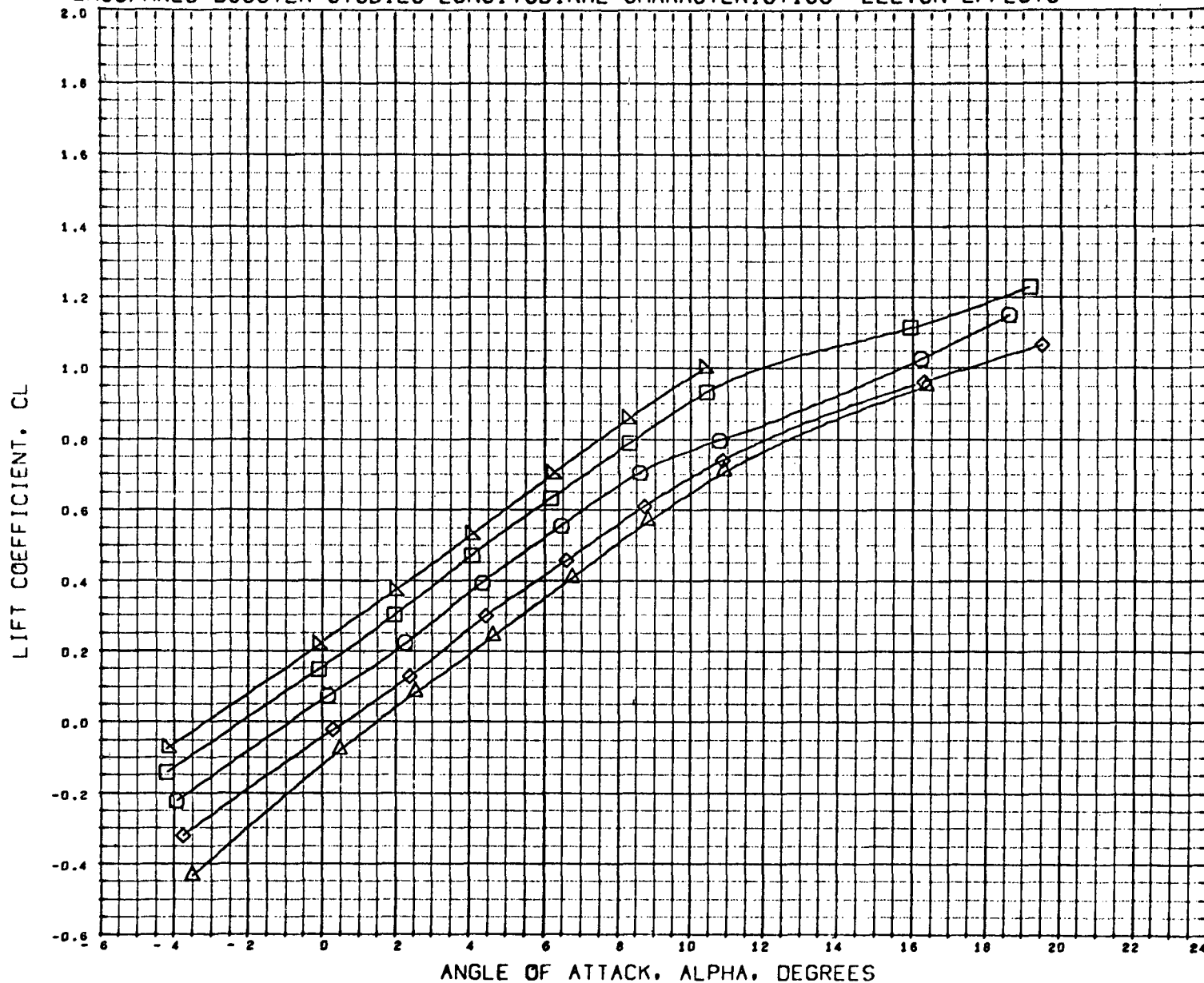
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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
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(RN3009)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3005)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP	2.5950 FEET
(RN3017)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.903

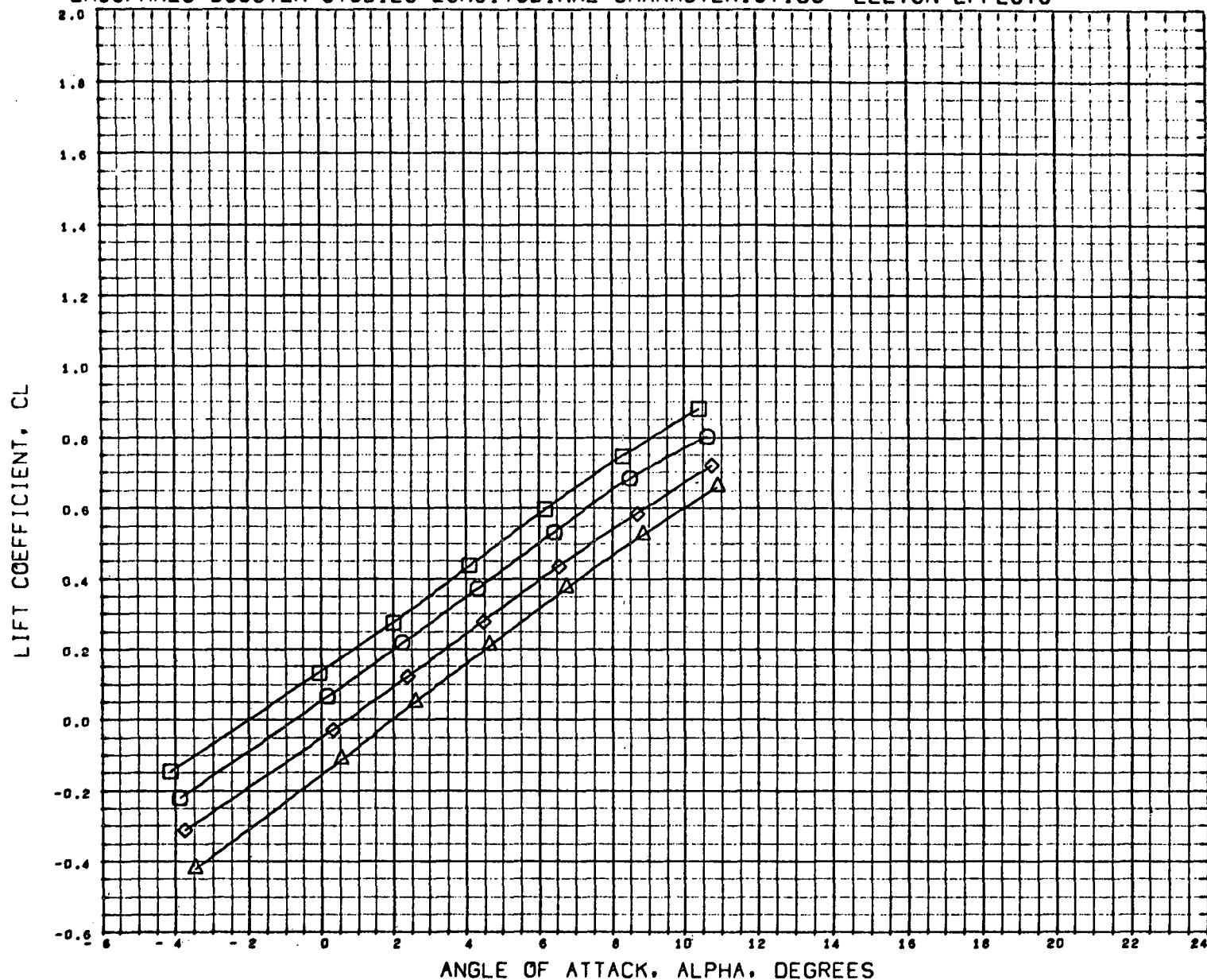
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3013)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3009)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF	3.4330 FEET
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3005)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP	2.5950 FEET
(RN3017)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 1.003

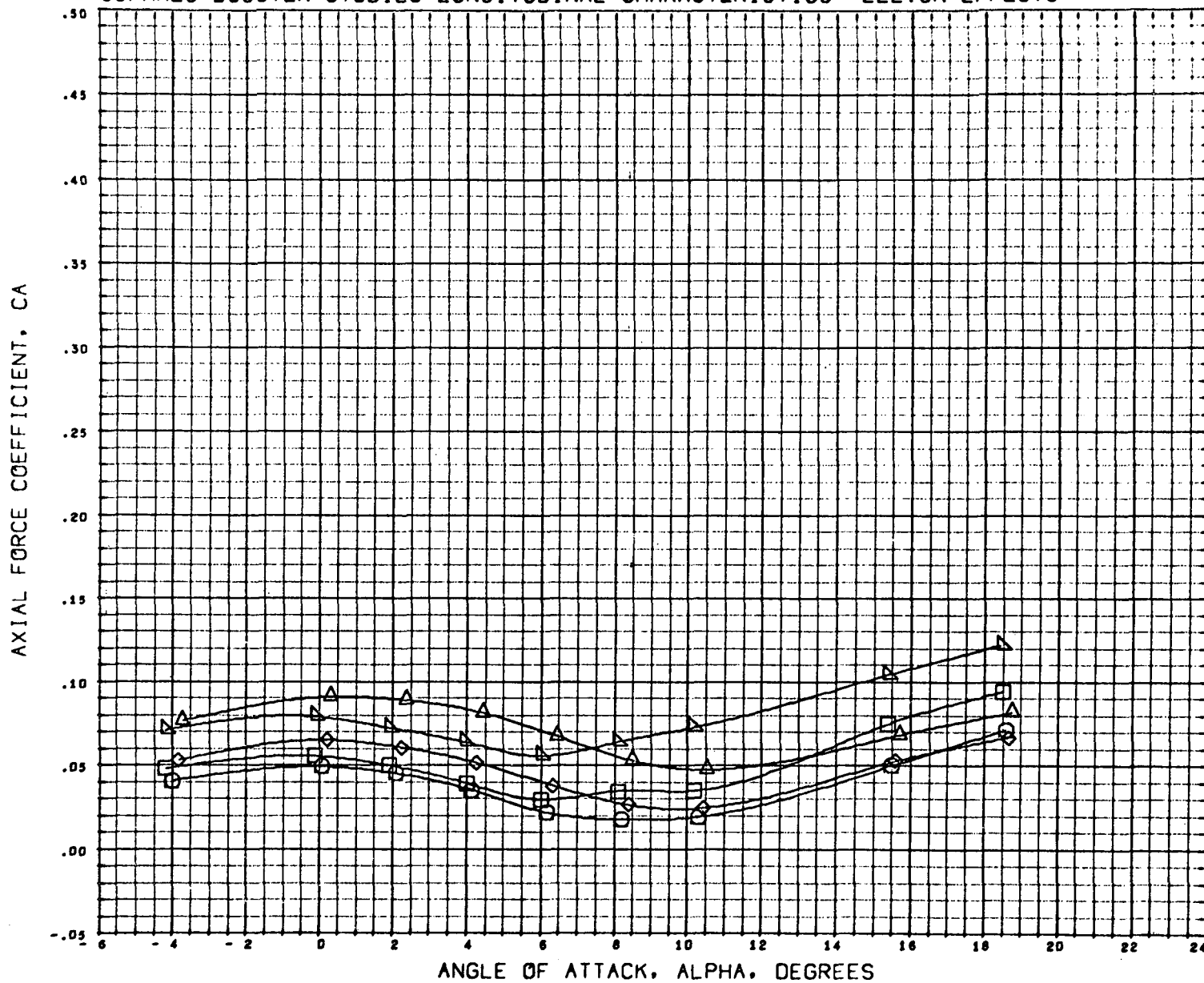
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3013)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF	1.3550 30.FT.
(RN3009)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3051)	□	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3005)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP	2.5950 FEET
(RN3017)	▽	DATA NOT AVAILABLE FOR ALL CONDITIONS	20.000	0.000	0.000	0.000	YMRP	0.0000 FEET
							ZMRP	0.0167 FEET
							SCALE	0.0150 SCALE

MACH 1.122

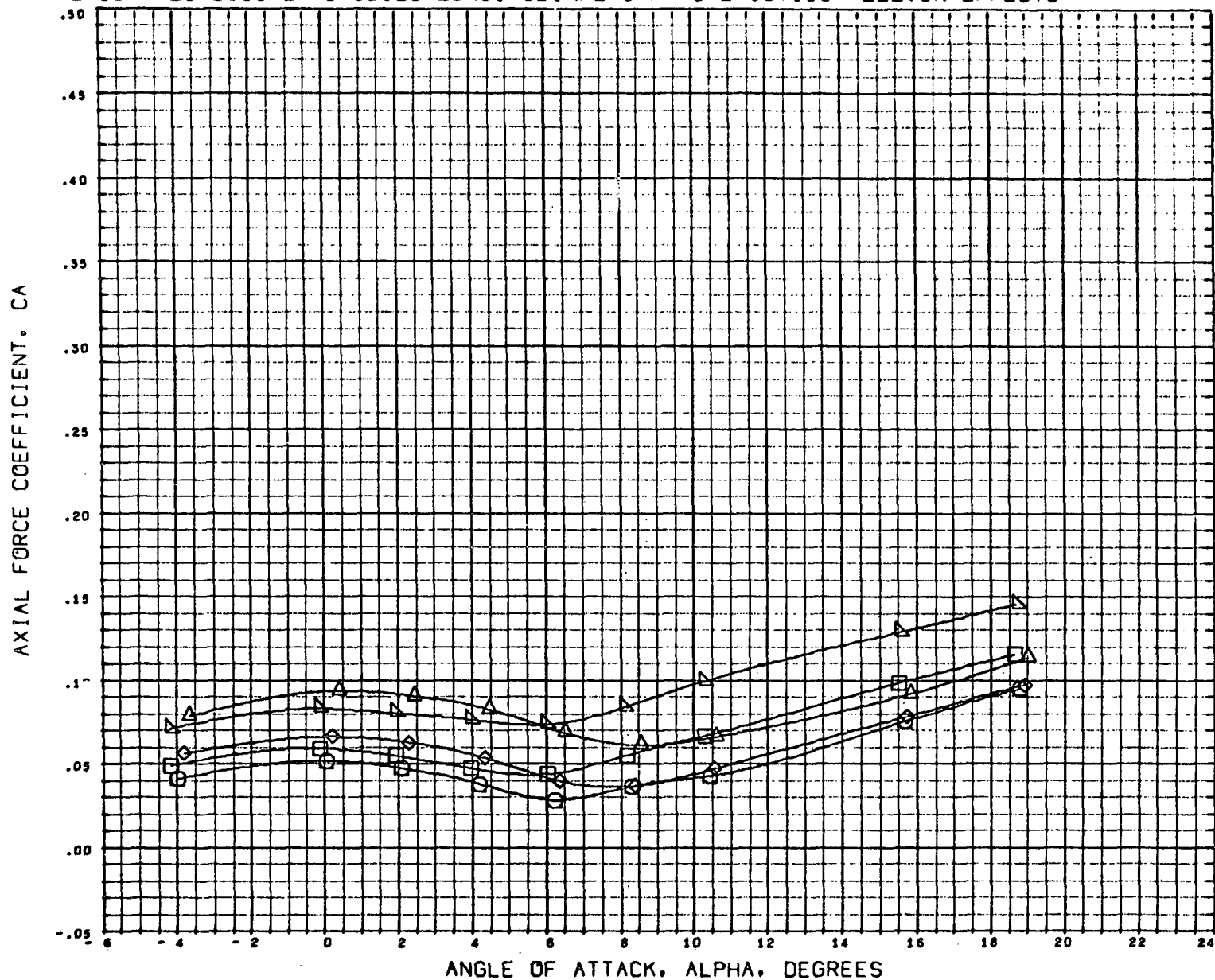
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3013)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(RN3009)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF	3.4330 FEET
(RN3001)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4330 FEET
(RN3005)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XHRP	2.5950 FEET
(RN3017)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YHRP	0.0000 FEET
						ZHRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.704

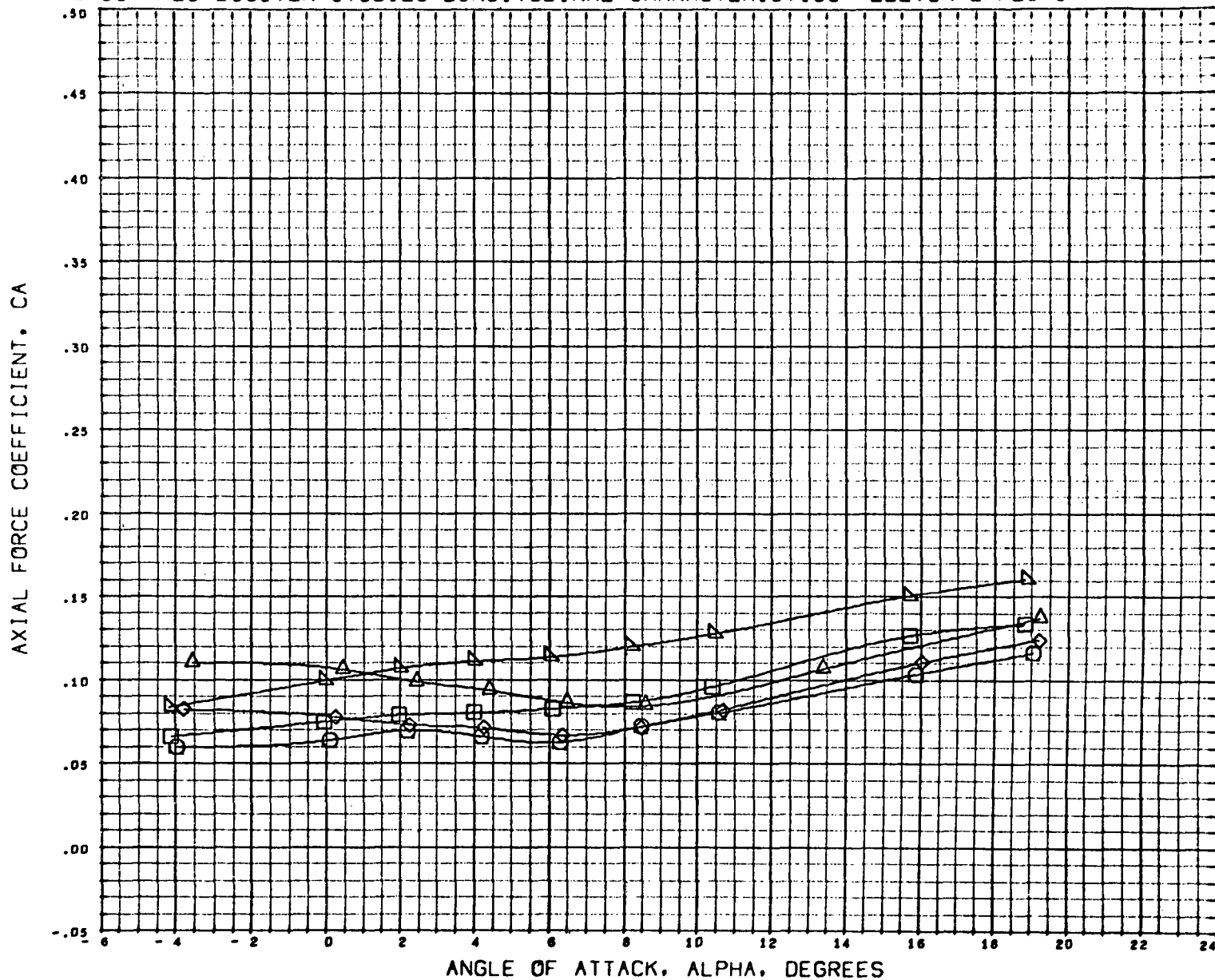
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3013)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3009)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3001)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3005)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRF	2.5950 FEET
(RN3017)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRF	0.0000 FEET
						ZMRF	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.800

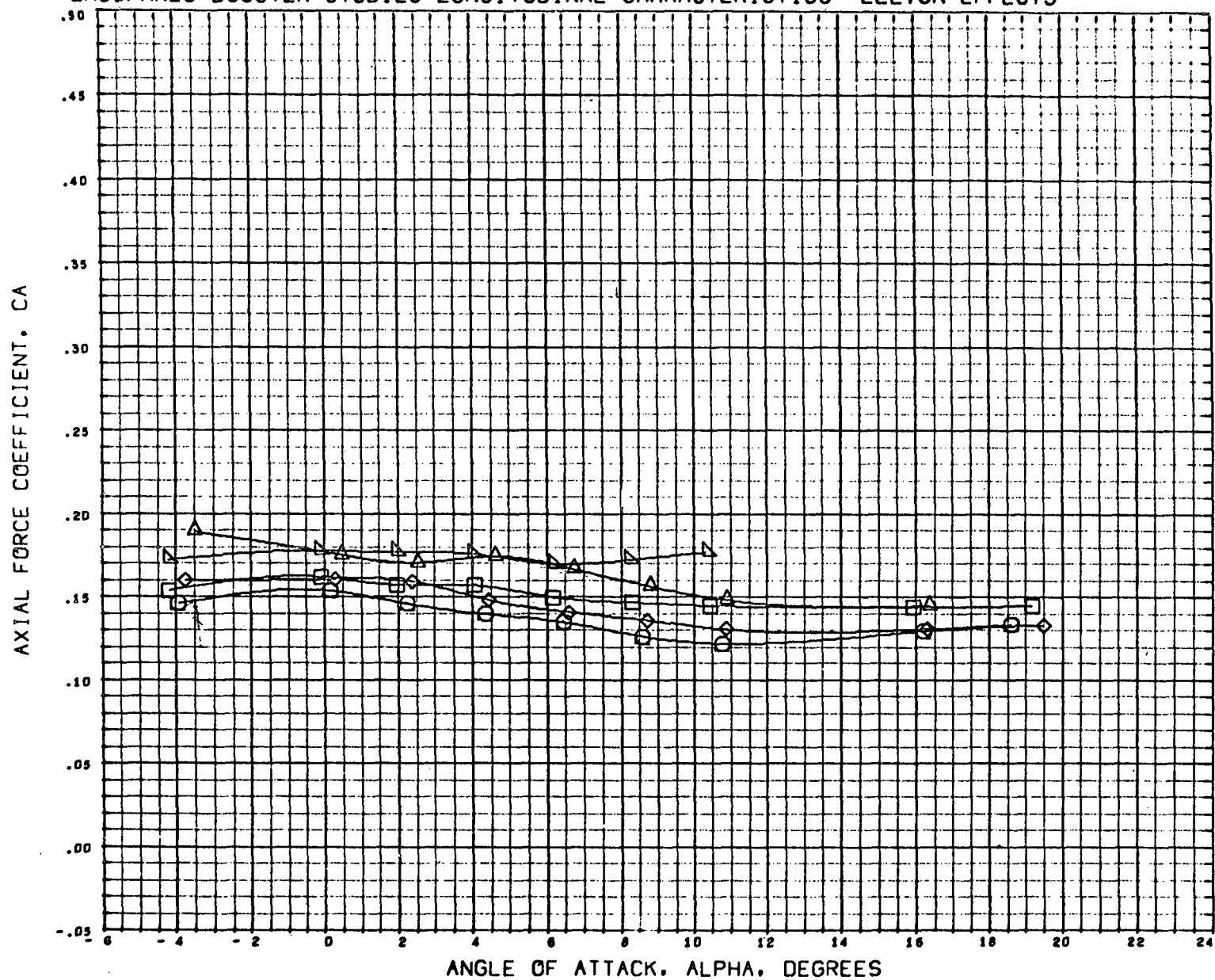
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3013)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3009)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3001)	□	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3005)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP	2.5950 FEET
(RN3017)	×	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRP	0.0000 FEET
							ZMRP	0.0167 FEET
							SCALE	0.0150 SCALE

MACH 0.903

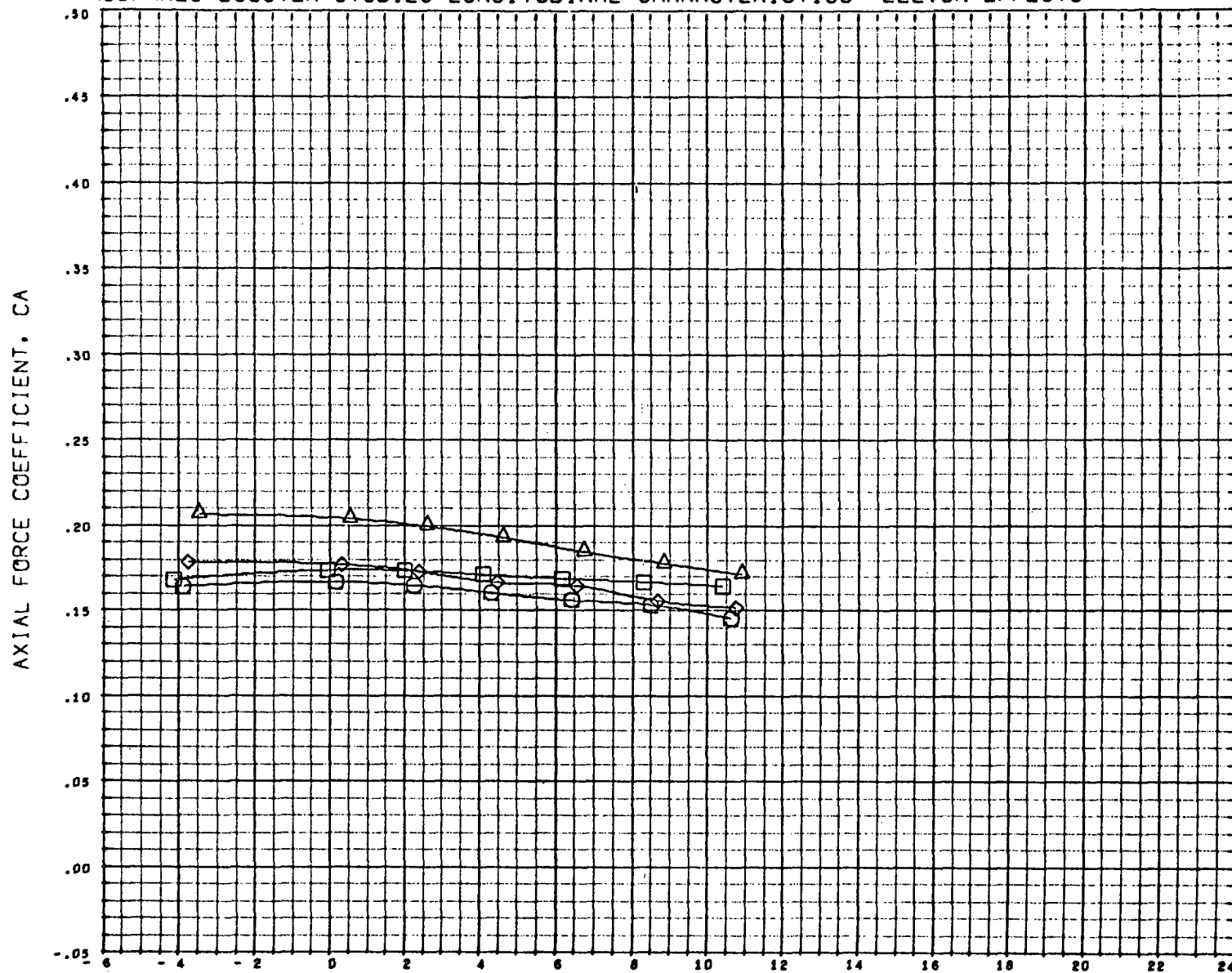
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3013)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3009)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF 3.4530 FEET
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3005)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP 2.5950 FEET
(RN3017)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 1.003

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



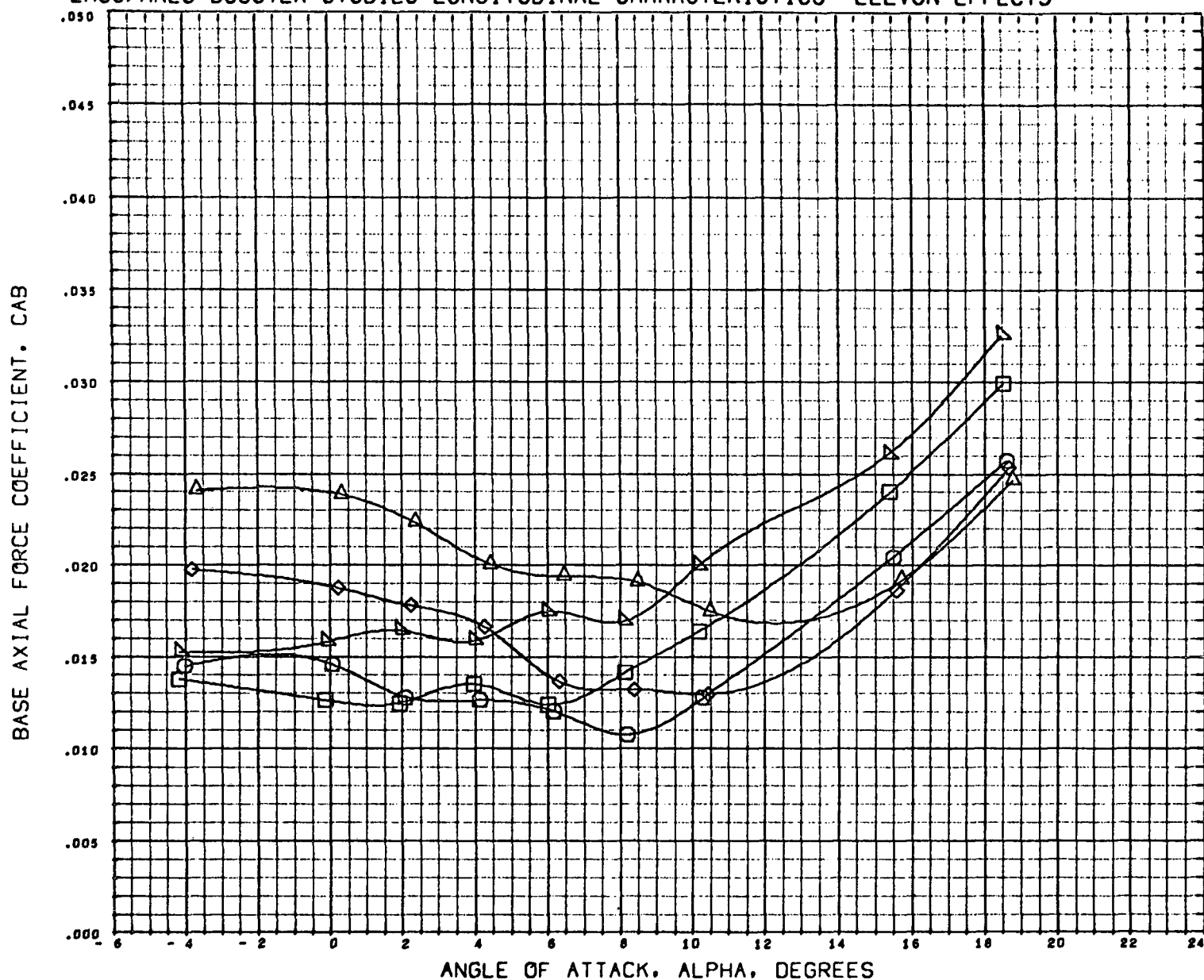
ANGLE OF ATTACK, ALPHA, DEGREES

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(R3013)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(R3009)	□	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF	3.4530 FEET
(R3001)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(R3005)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP	2.5950 FEET
(R3017)	▽	DATA NOT AVAILABLE FOR ALL CONDITIONS	20.000	0.000	0.000	0.000	YMRP	0.0000 FEET
							ZMRP	0.0187 FEET
							SCALE	0.0150 SCALE

MACH

1.122

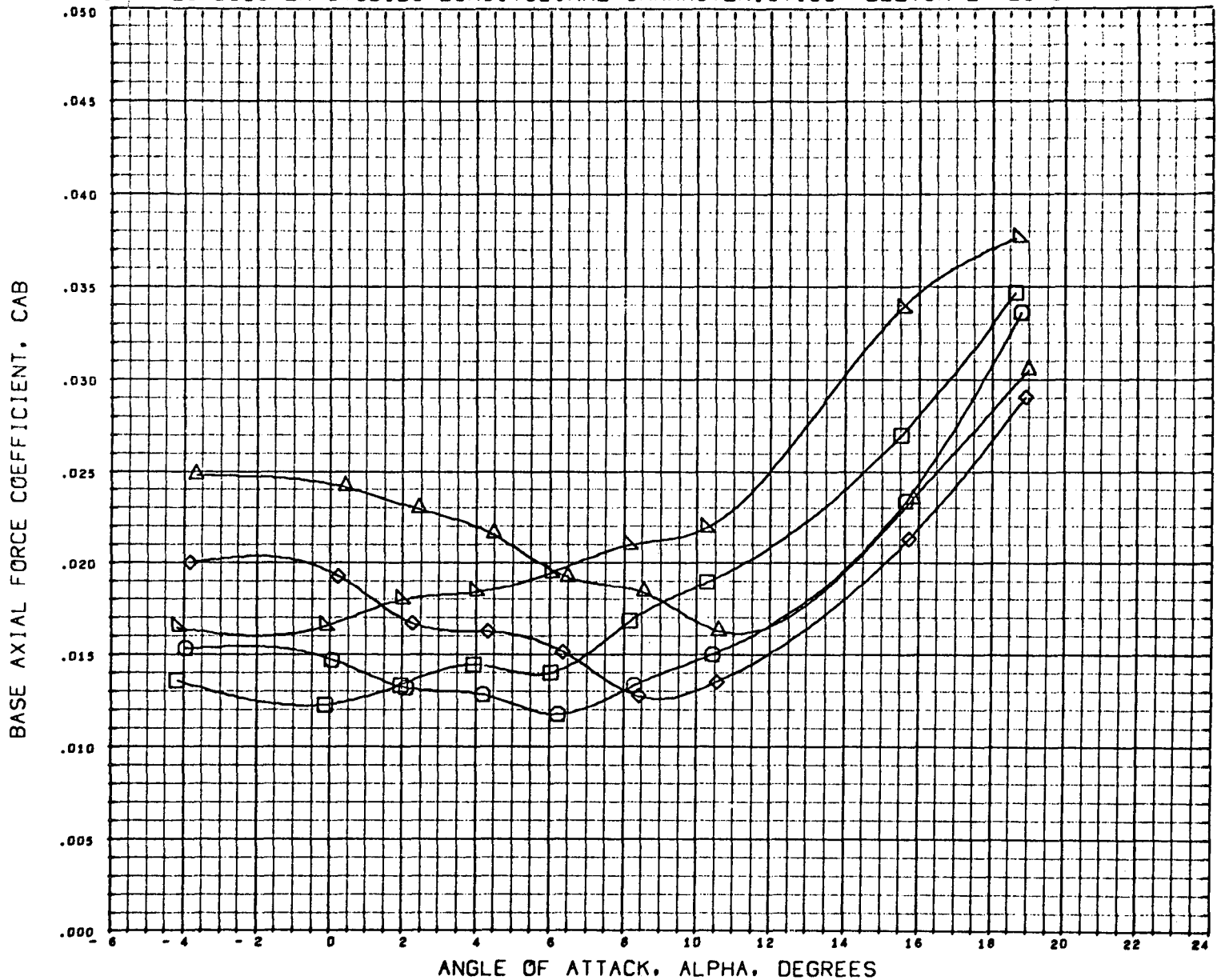
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3013)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3009)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3005)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP	2.5950 FEET
(RN3017)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.704

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

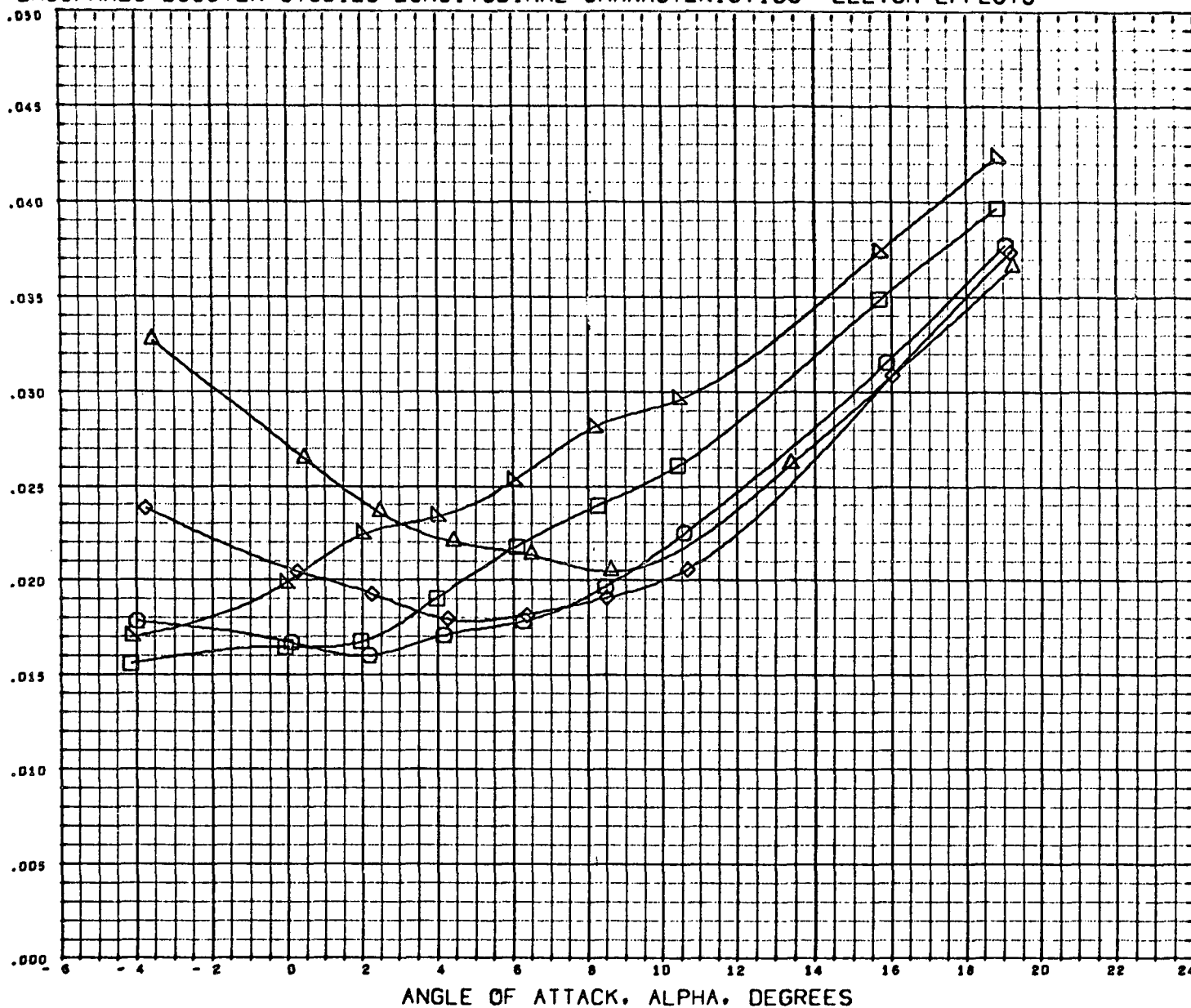


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3013)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3009)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3005)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMHP	2.5950 FEET
(RN3017)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMHP	0.0000 FEET
						ZMHP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.800

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

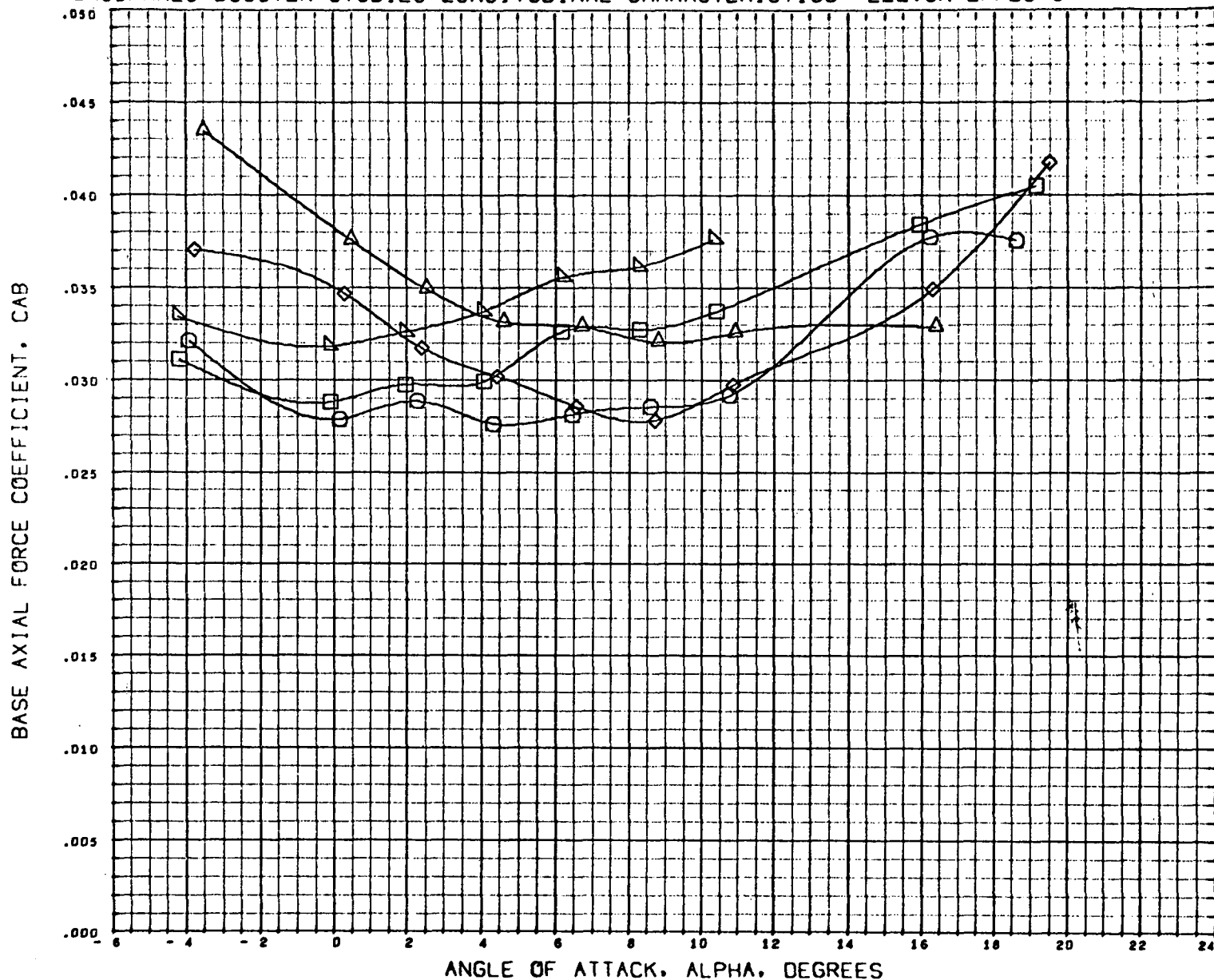
BASE AXIAL FORCE COEFFICIENT, CAB



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3013)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3009)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3005)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMPP	2.5950 FEET
(RN3017)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMPP	0.0000 FEET
						ZMPP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.903

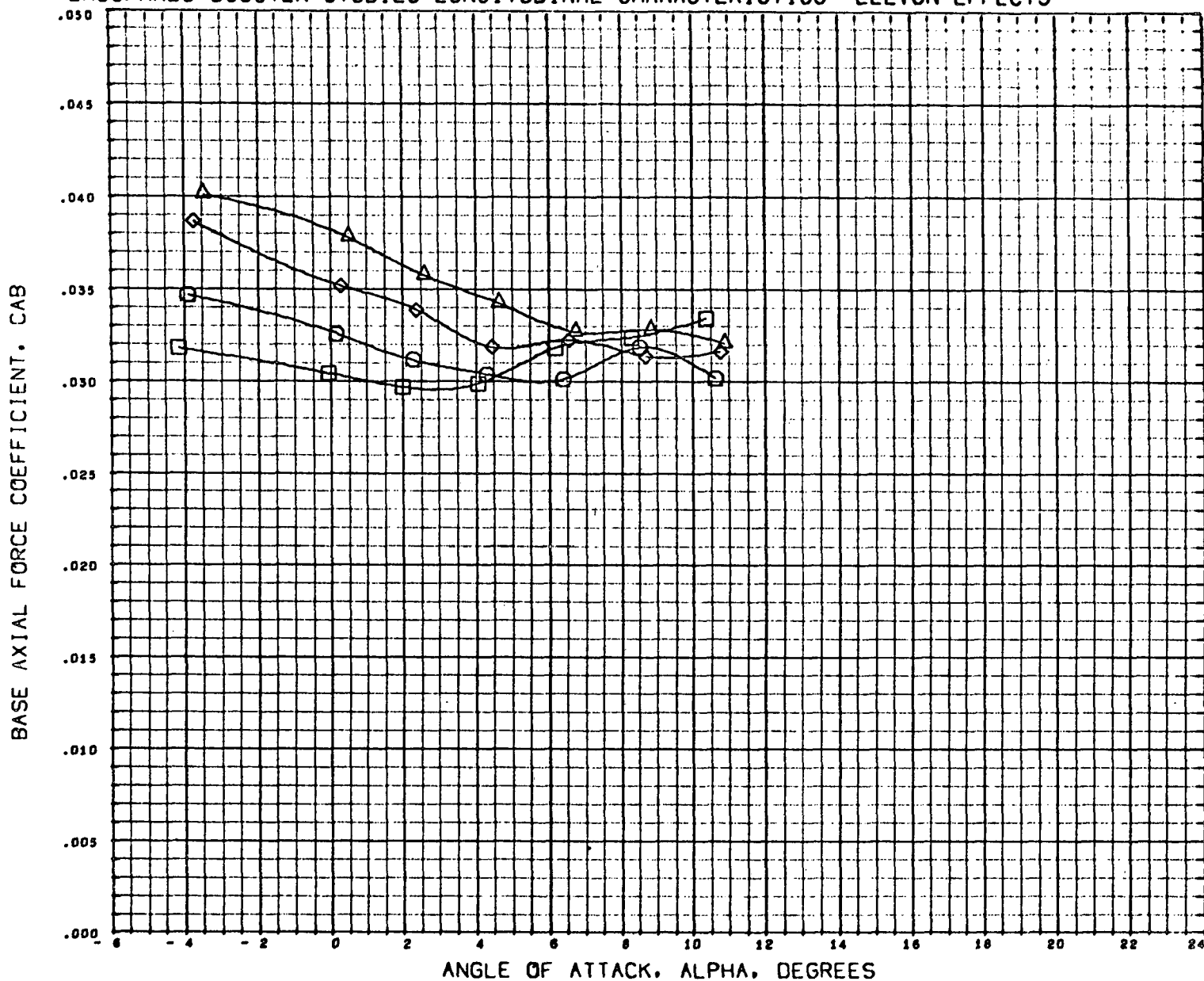
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3013)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF	1.3550 80. FT.
(RN3009)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3001)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3005)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP	2.5950 FEET
(RN3017)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 1.003

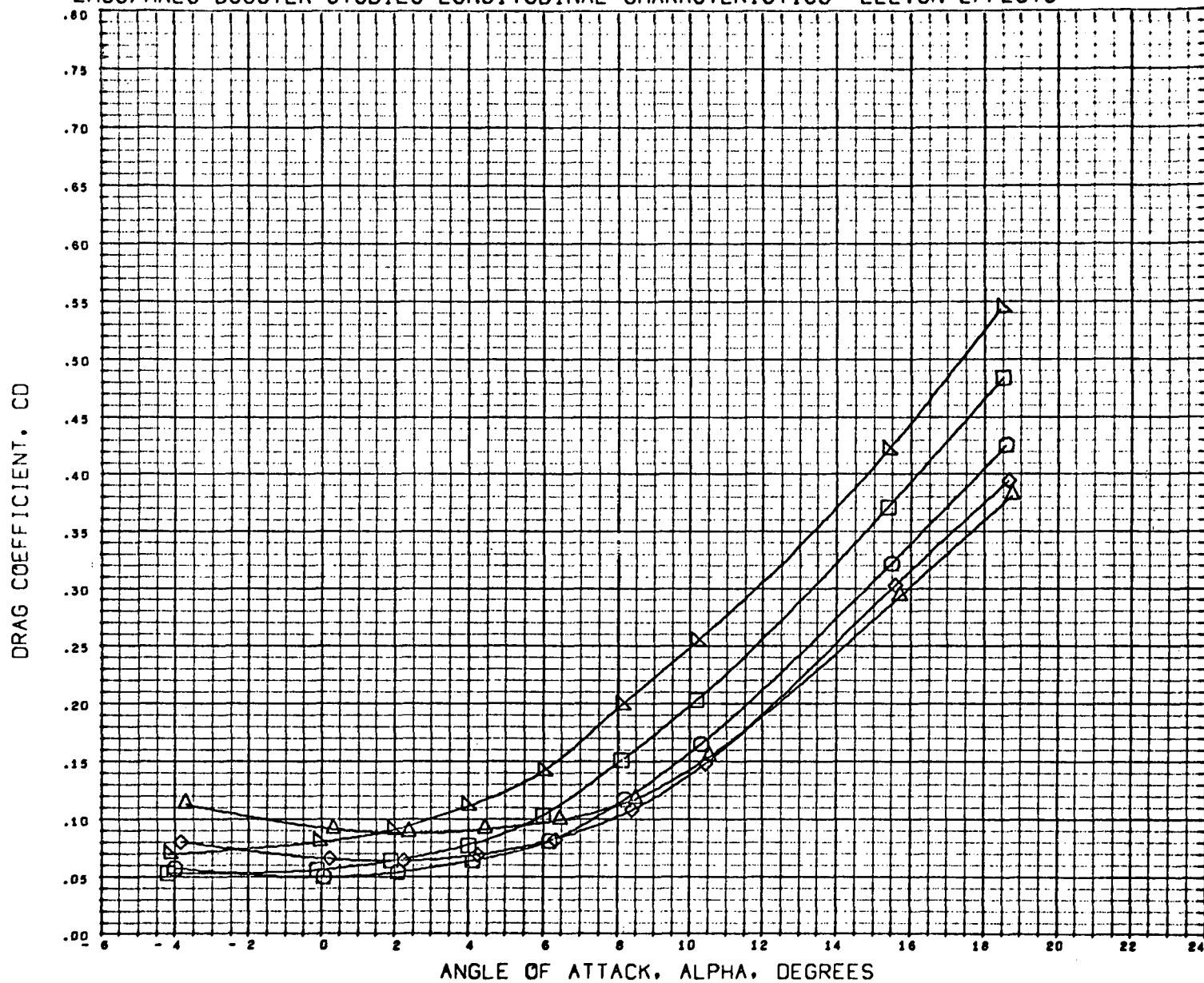
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	ATLON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3013)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3009)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3005)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP	2.5950 FEET
(RN3017)	DATA NOT AVAILABLE FOR ALL CONDITIONS	20.000	0.000	0.000	0.000	YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 1.122

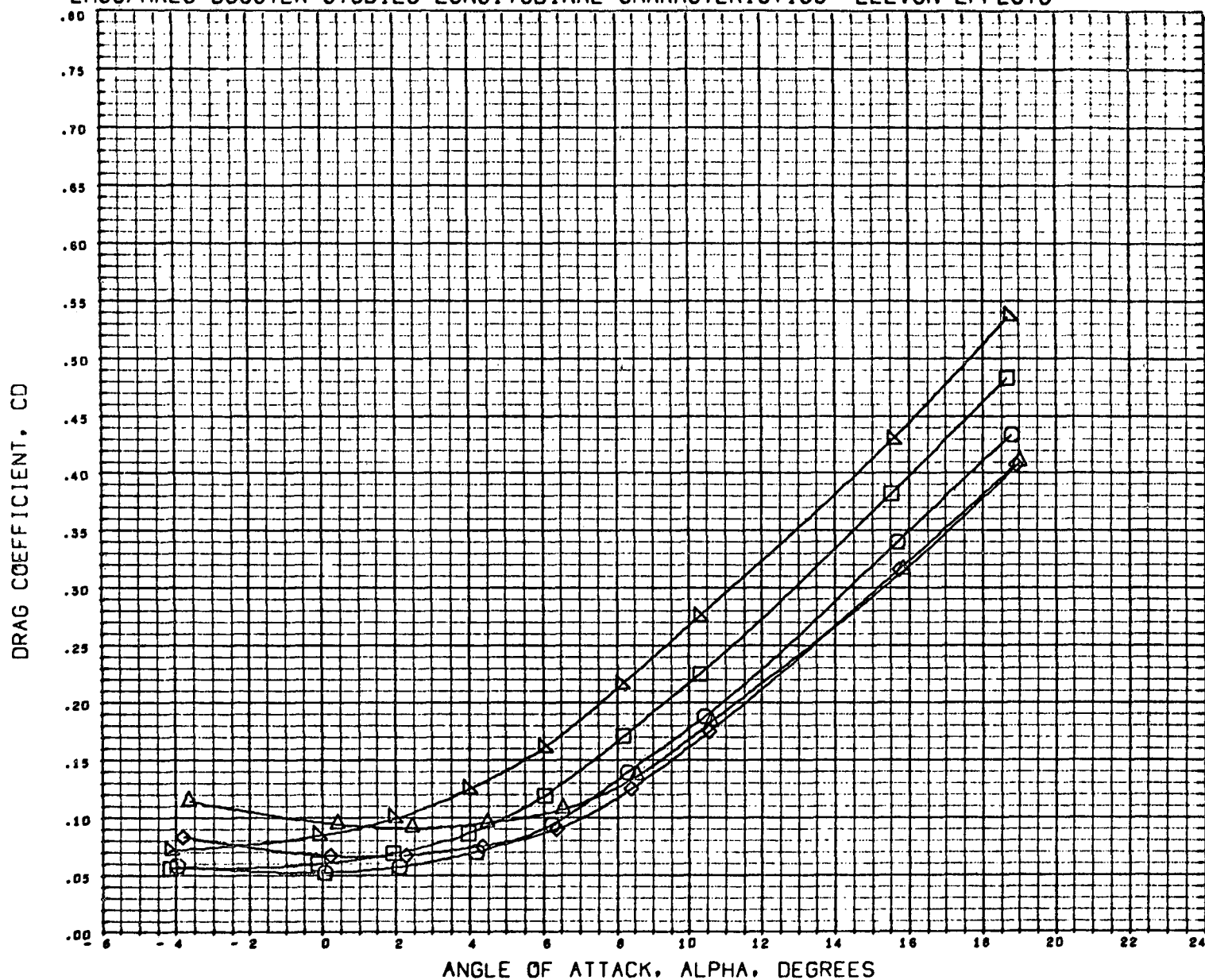
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3013)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3009)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3005)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP	2.5950 FEET
(RN3017)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.704

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

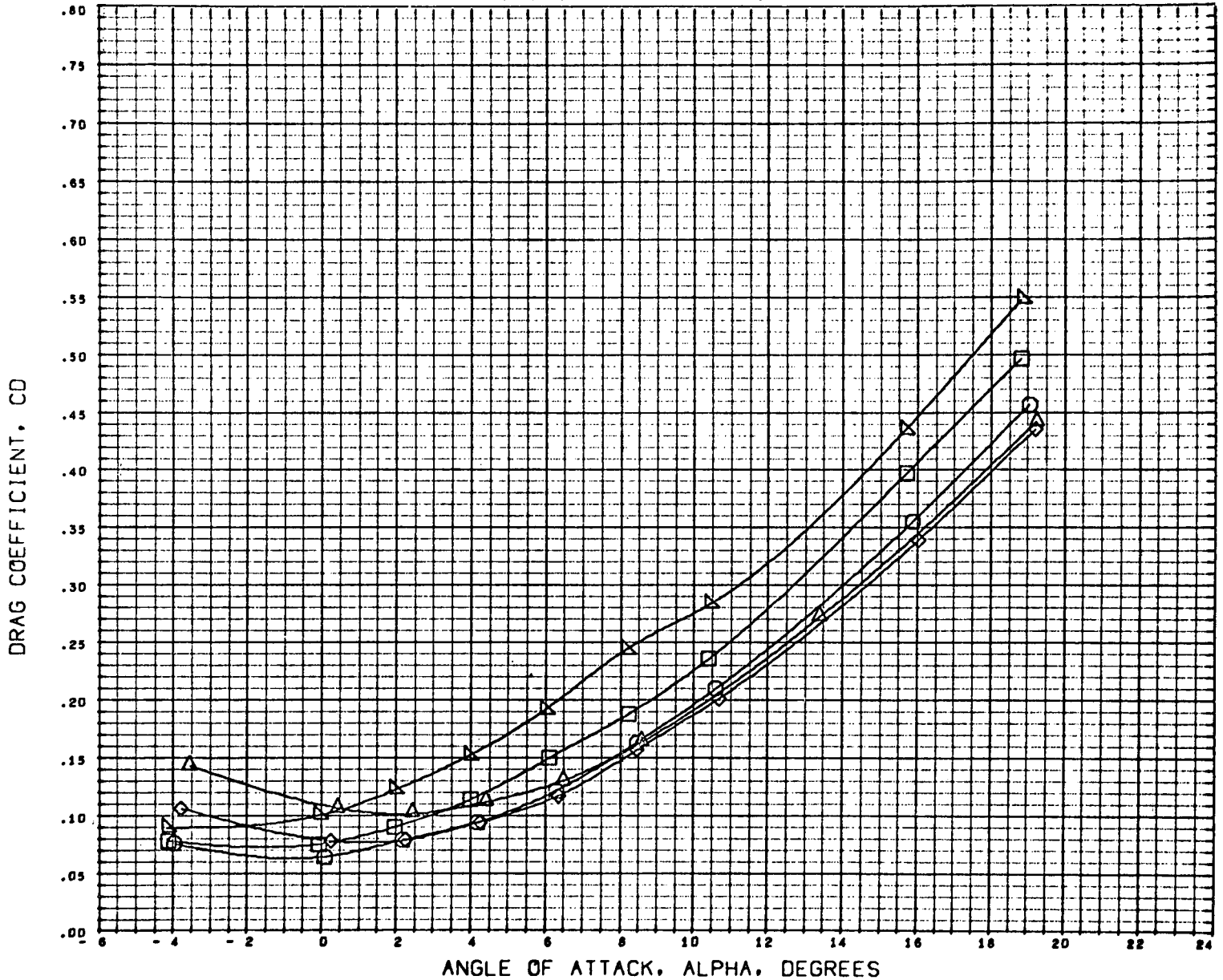


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION		
(RN3013)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF	1.3550	SQ.FT.
(RN3009)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF	3.4530	FEET
(RN3001)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530	FEET
(RN3005)	□	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP	2.5950	FEET
(RN3017)	▽	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRP	0.0000	FEET
							ZMRP	0.0187	FEET
							SCALE	0.0150	SCALE

MACH

0.800

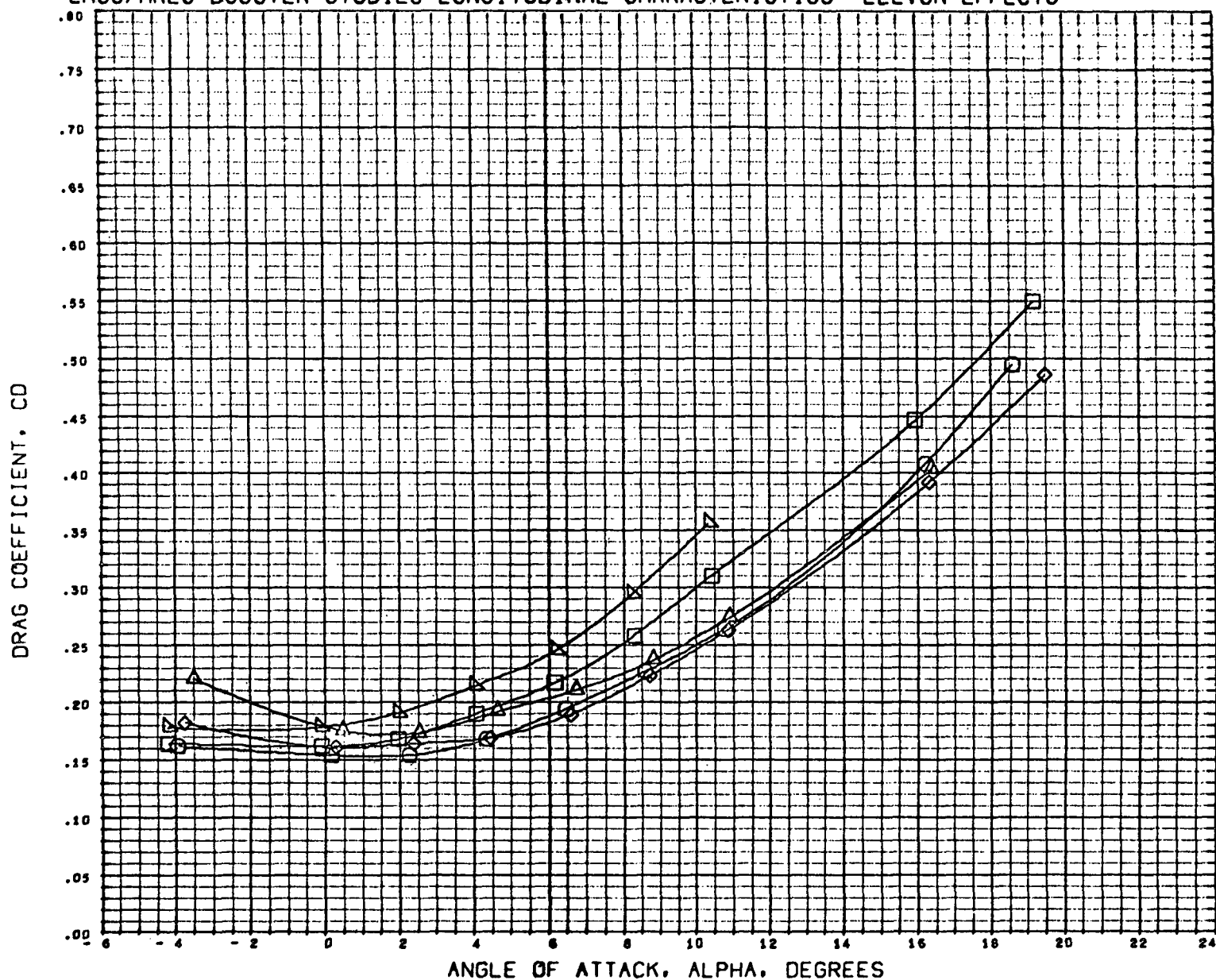
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3013)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
(RN3009)	◻	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF 3.4530 FEET
(RN3001)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3005)	◊	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP 2.5950 FEET
(RN3017)	×	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRP 0.0000 FEET
							ZMRP 0.0187 FEET
							SCALE 0.0150 SCALE

MACH 0.903

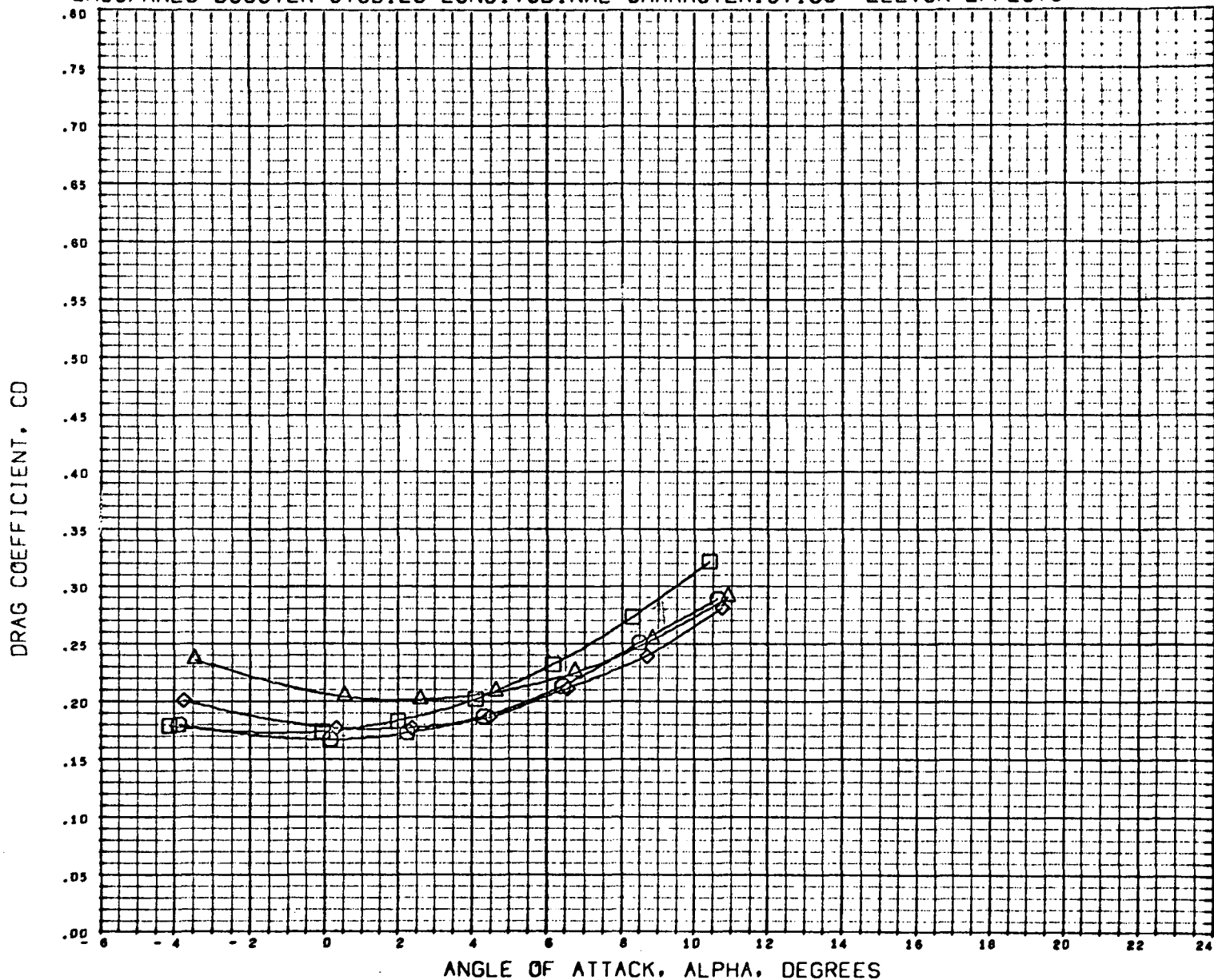
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION		
(RN3013)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF	1.3550	59. FT.
(RN3009)	□	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF	3.4530	FEET
(RN3001)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530	FEET
(RN3005)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP	2.5950	FEET
(RN3017)	▽	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRP	0.0000	FEET
							ZMRP	0.0187	FEET
							SCALE	0.0150	SCALE

MACH 1.003

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



ANGLE OF ATTACK, ALPHA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(R3013)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(R3009)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF	3.4530 FEET
(R3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(R3005)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP	2.5950 FEET
(R3017)	DATA NOT AVAILABLE FOR ALL CONDITIONS	20.000	0.000	0.000	0.000	YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 1.122

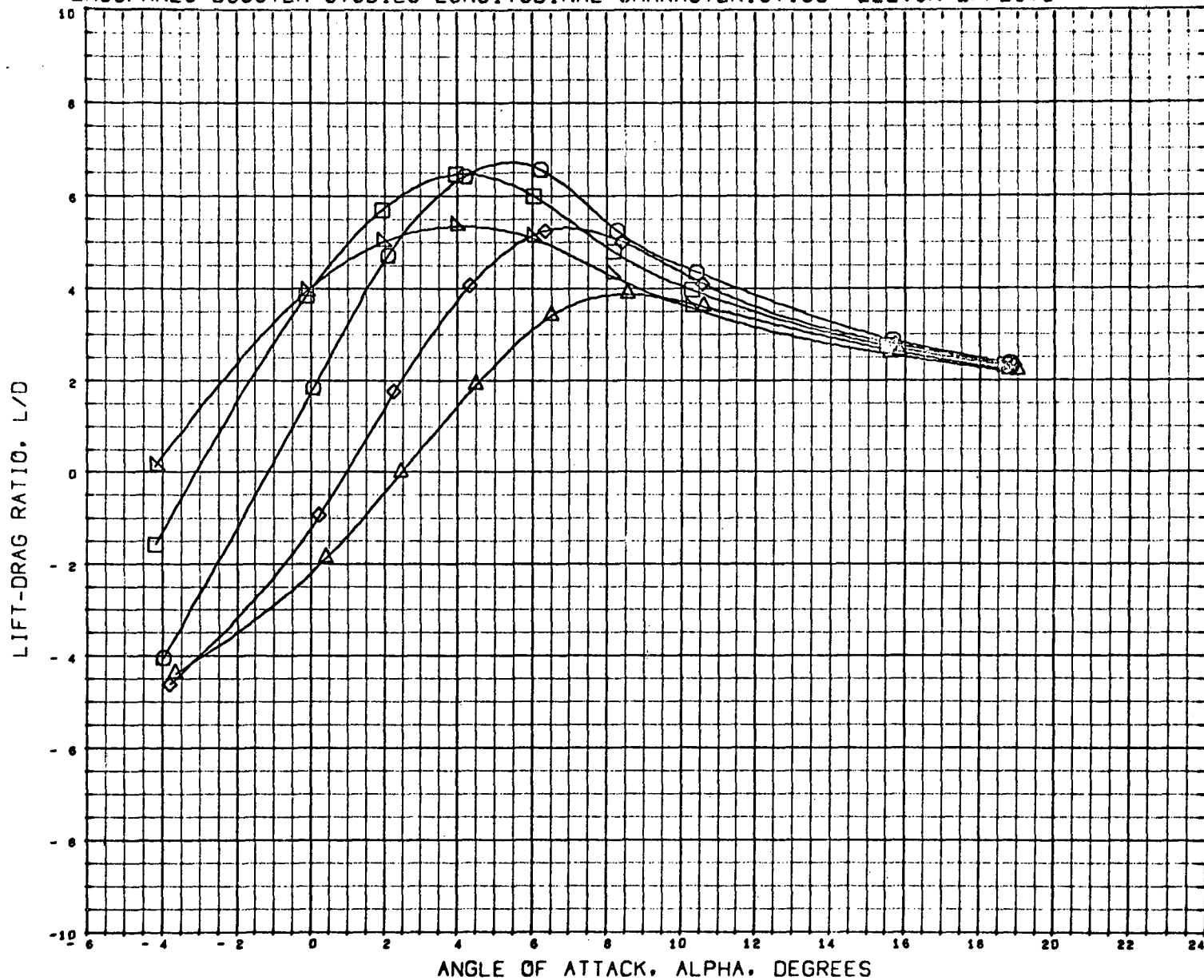
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3013)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF	1.3550 50.FT.
(RN3009)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3001)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3005)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XWRP	2.5950 FEET
(RN3017)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YWRP	0.0000 FEET
						ZWRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.704

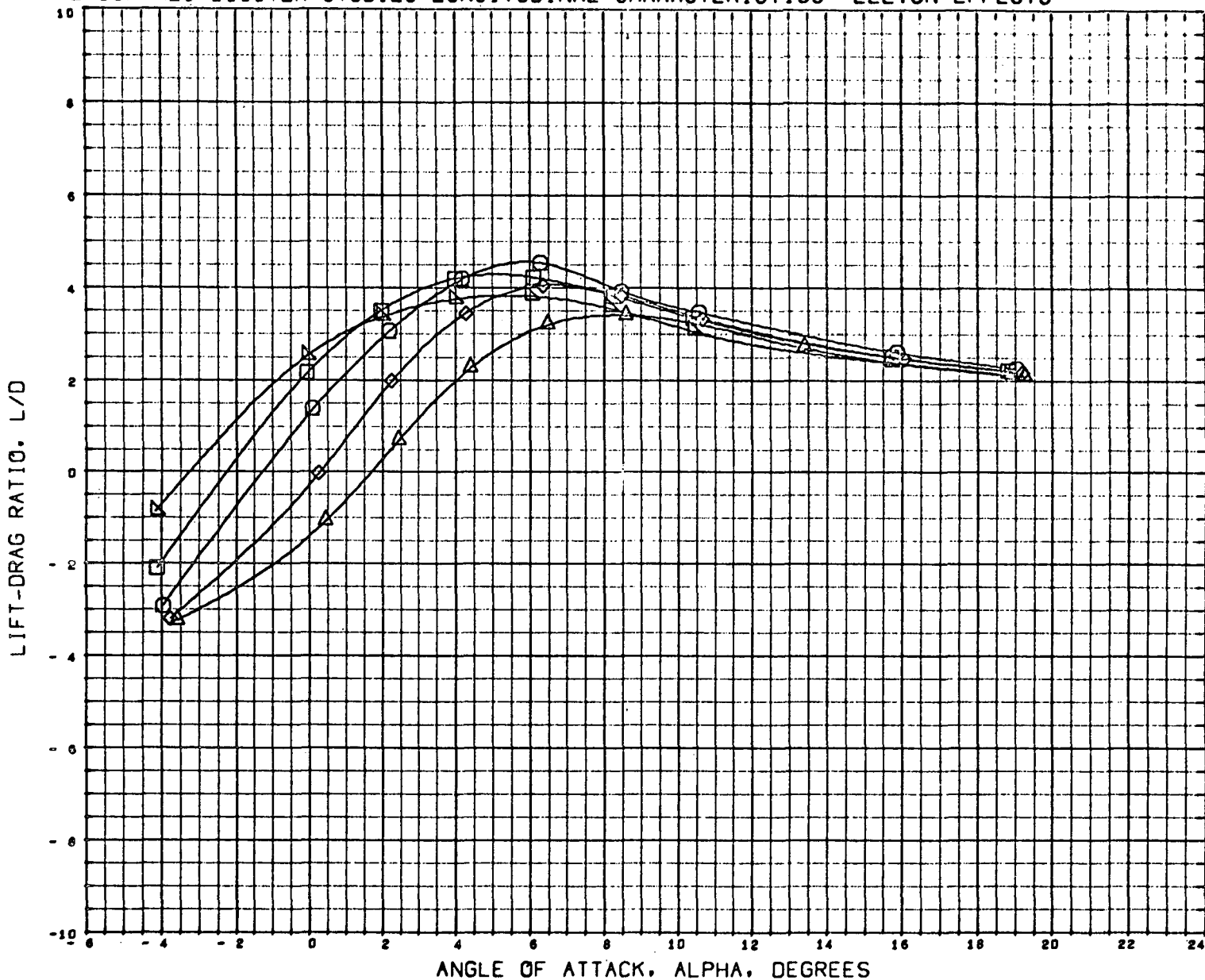
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3013)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3009)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3005)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP	2.5950 FEET
(RN3017)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.800

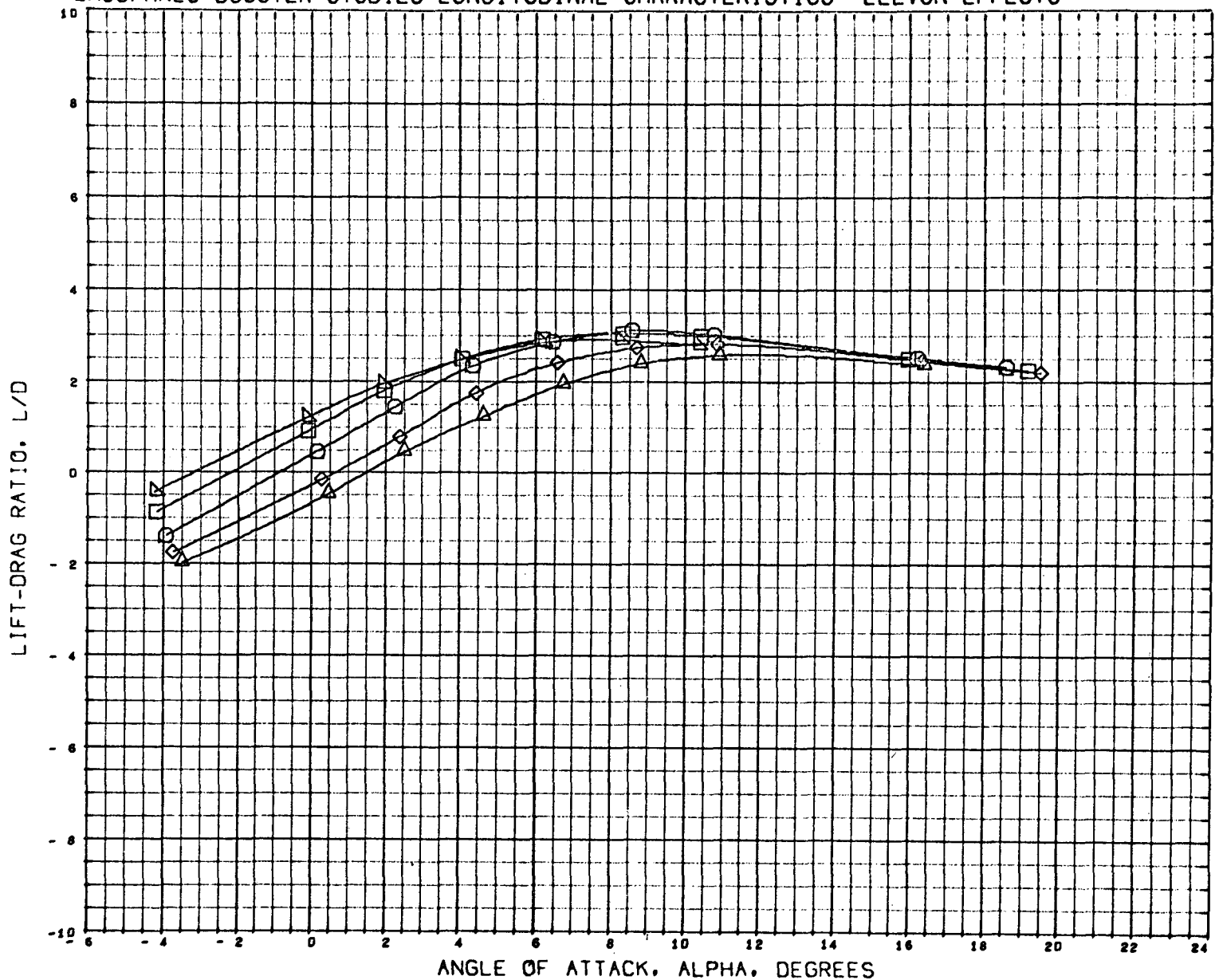
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3013)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3009)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3005)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XNRP	2.5950 FEET
(RN3017)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YNRP	0.0000 FEET
						ZNRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.903

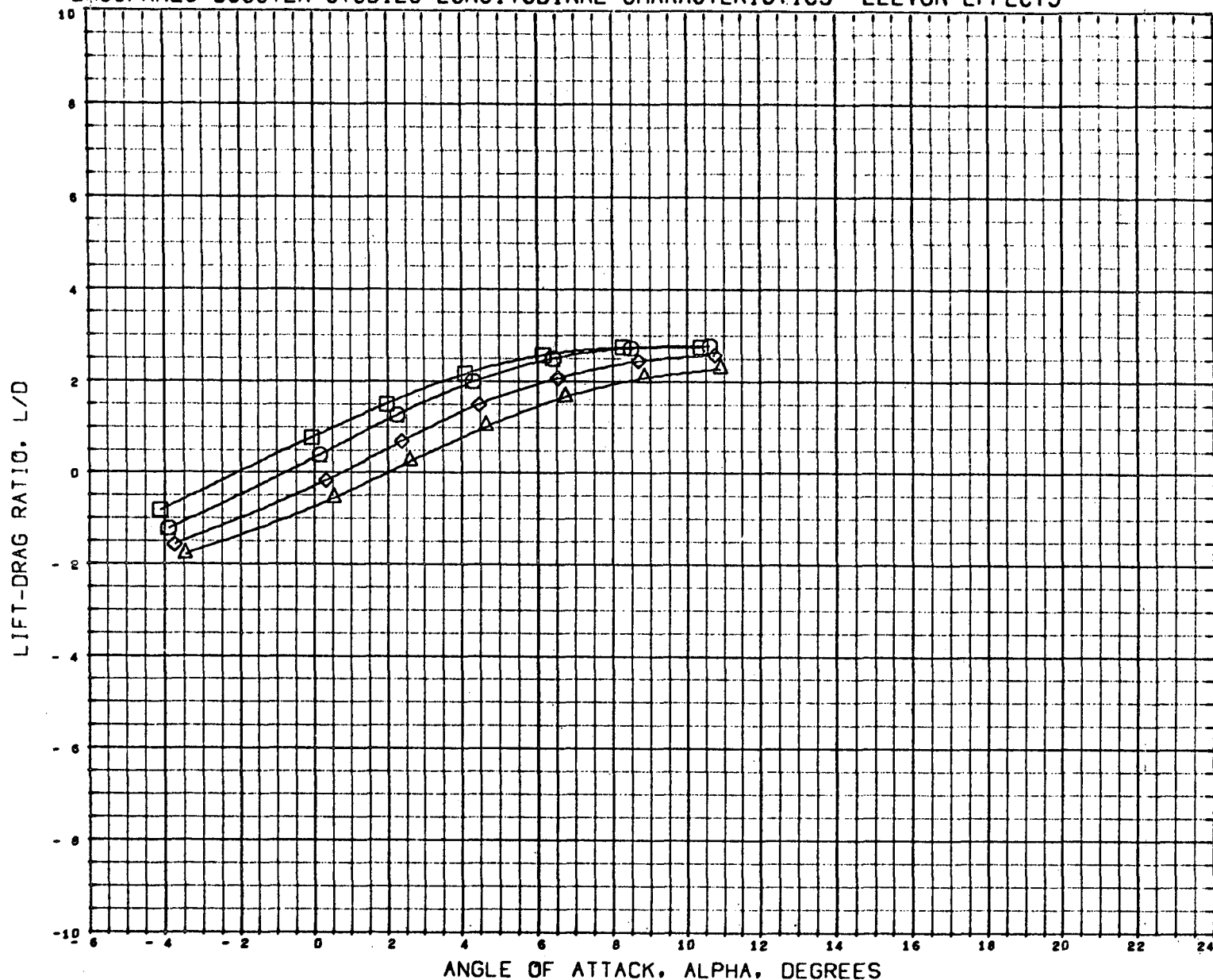
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3013)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF	1.3550 30.FT.
(RN3009)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3005)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP	2.5950 FEET
(RN3017)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 1.063

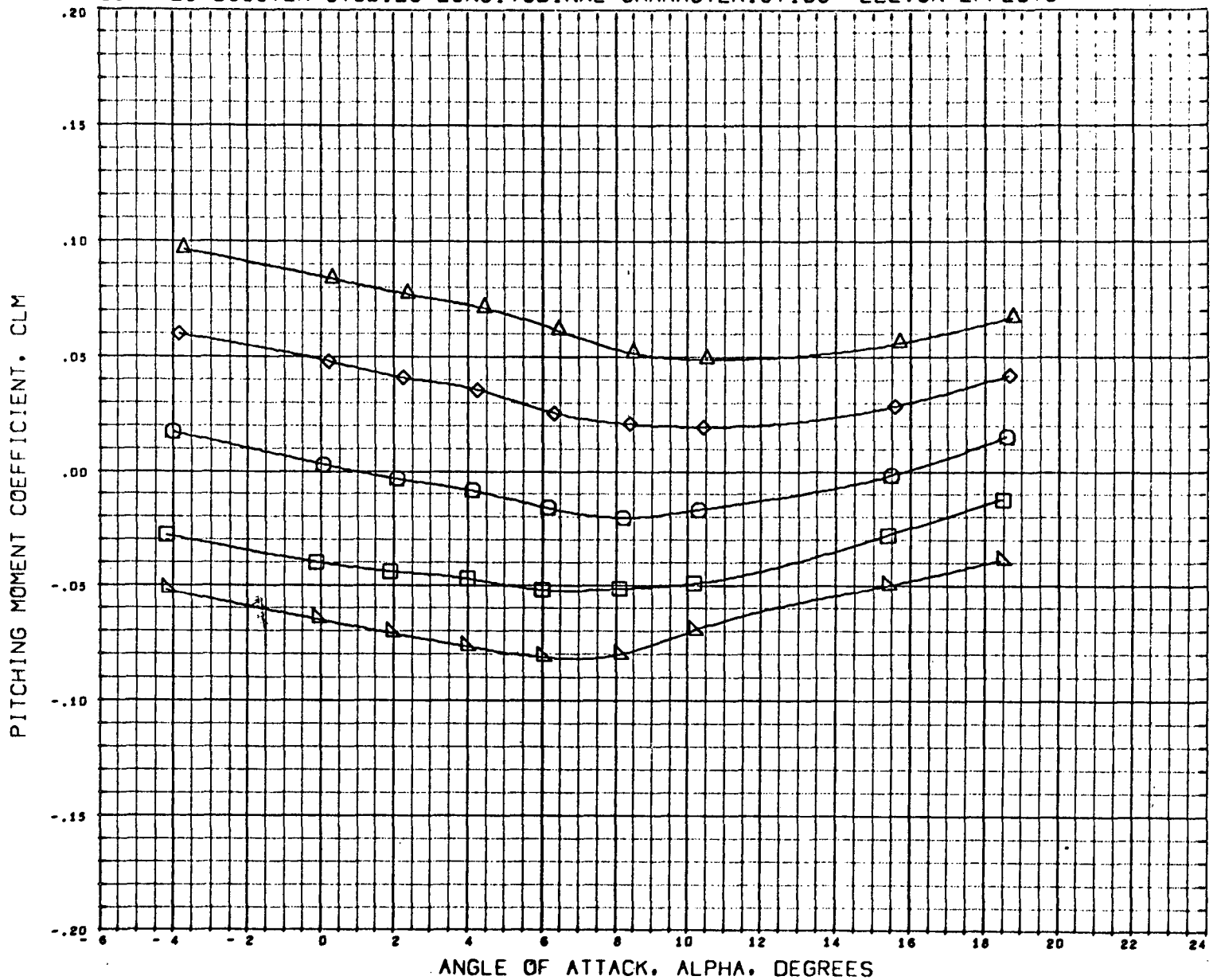
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3013)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3009)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF	3.4330 FEET
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4330 FEET
(RN3005)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMPP	2.5950 FEET
(RN3017)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMPP	0.0000 FEET
	DATA NOT AVAILABLE FOR ALL CONDITIONS					ZMPP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 1.122

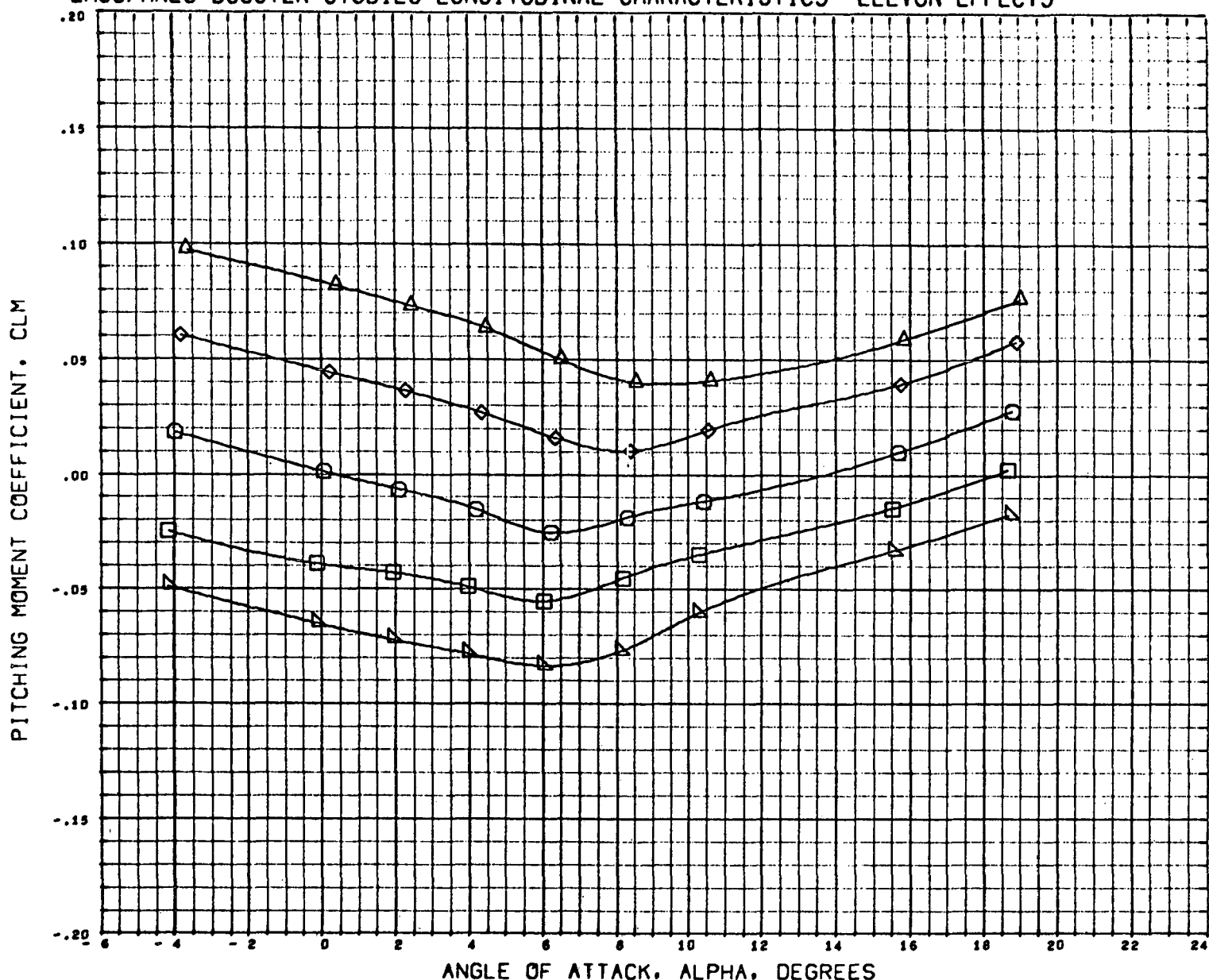
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3013)	▲	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3009)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF	3.4330 FEET
(RN3001)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4330 FEET
(RN3005)	□	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRF	2.5950 FEET
(RN3017)	▽	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRF	0.0000 FEET
							ZMRF	0.0187 FEET
							SCALE	0.0150 SCALE

MACH 0.704

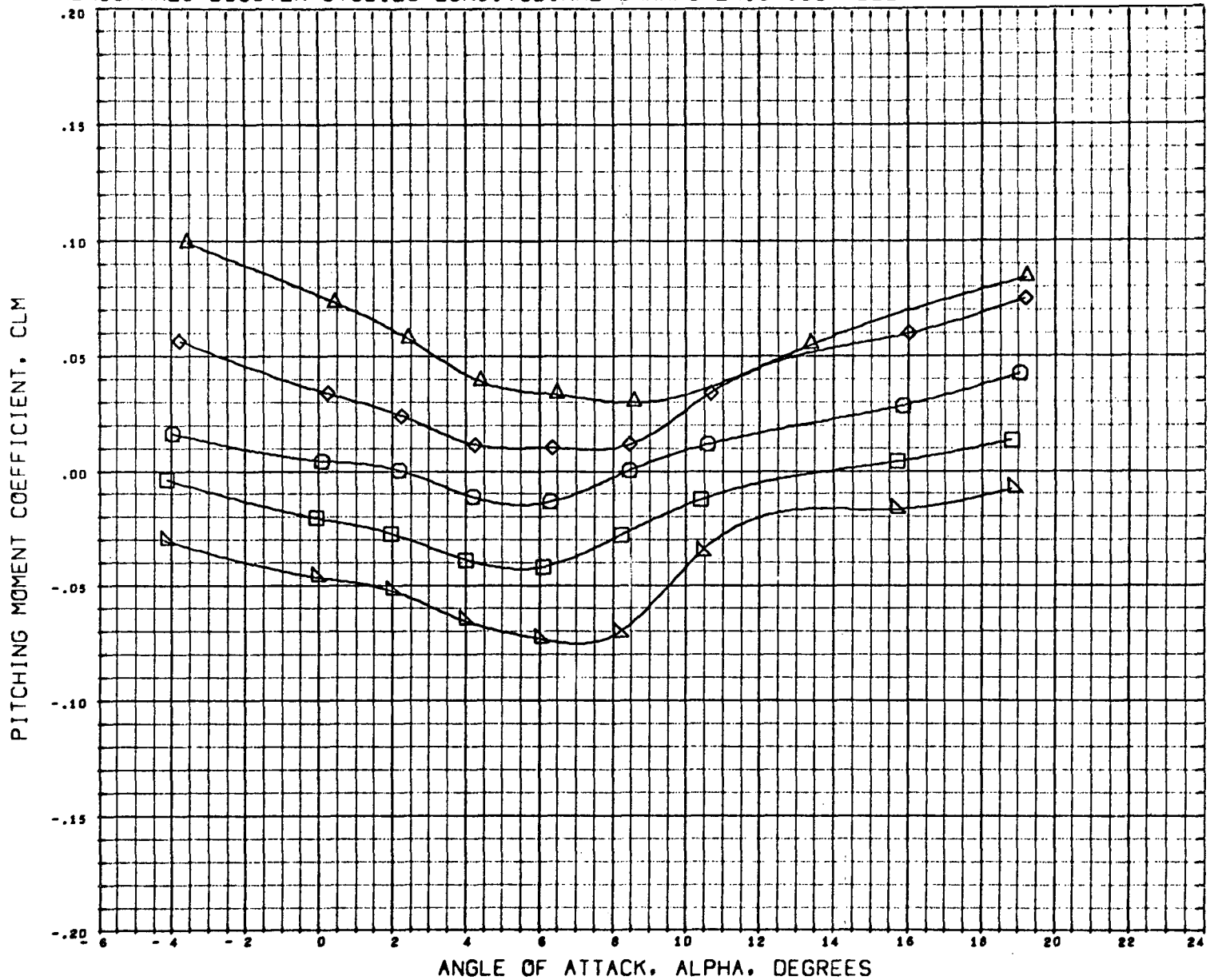
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION		
(RN3013)	△	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF	1.3550	SQ. FT.
(RN3009)	◇	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF	3.4530	FEET
(RN3001)	○	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530	FEET
(RN3005)	□	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP	2.5950	FEET
(RN3017)	▽	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRP	0.0000	FEET
							ZMRP	0.0187	FEET
							SCALE	0.0150	SCALE

MACH 0.800

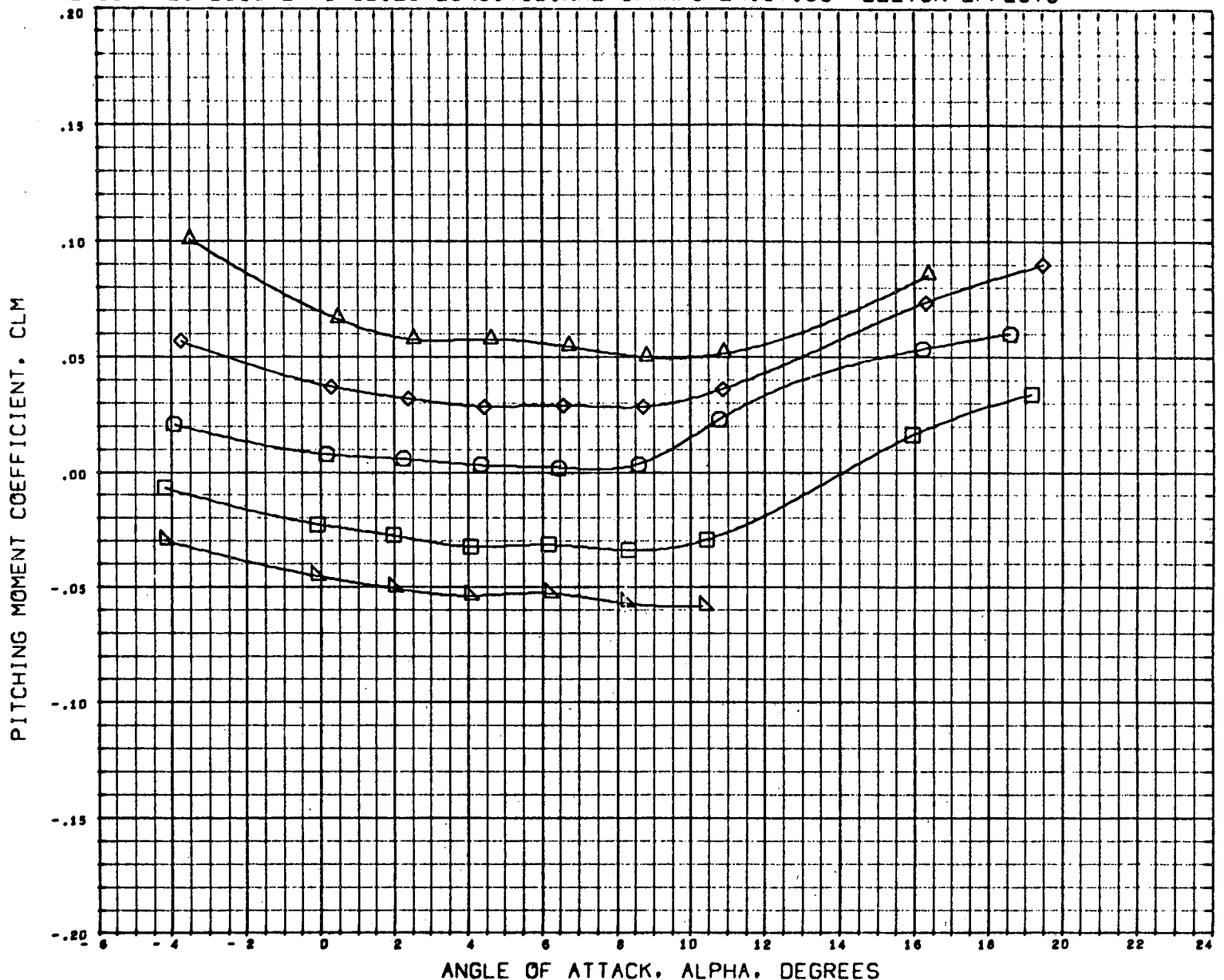
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3013)	△	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(RN3009)	◇	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3001)	○	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3005)	□	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMPP	2.5950 FEET
(RN3017)	▽	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMPP	0.0000 FEET
							ZMPP	0.0187 FEET
							SCALE	0.0150 SCALE

MACH 0.903

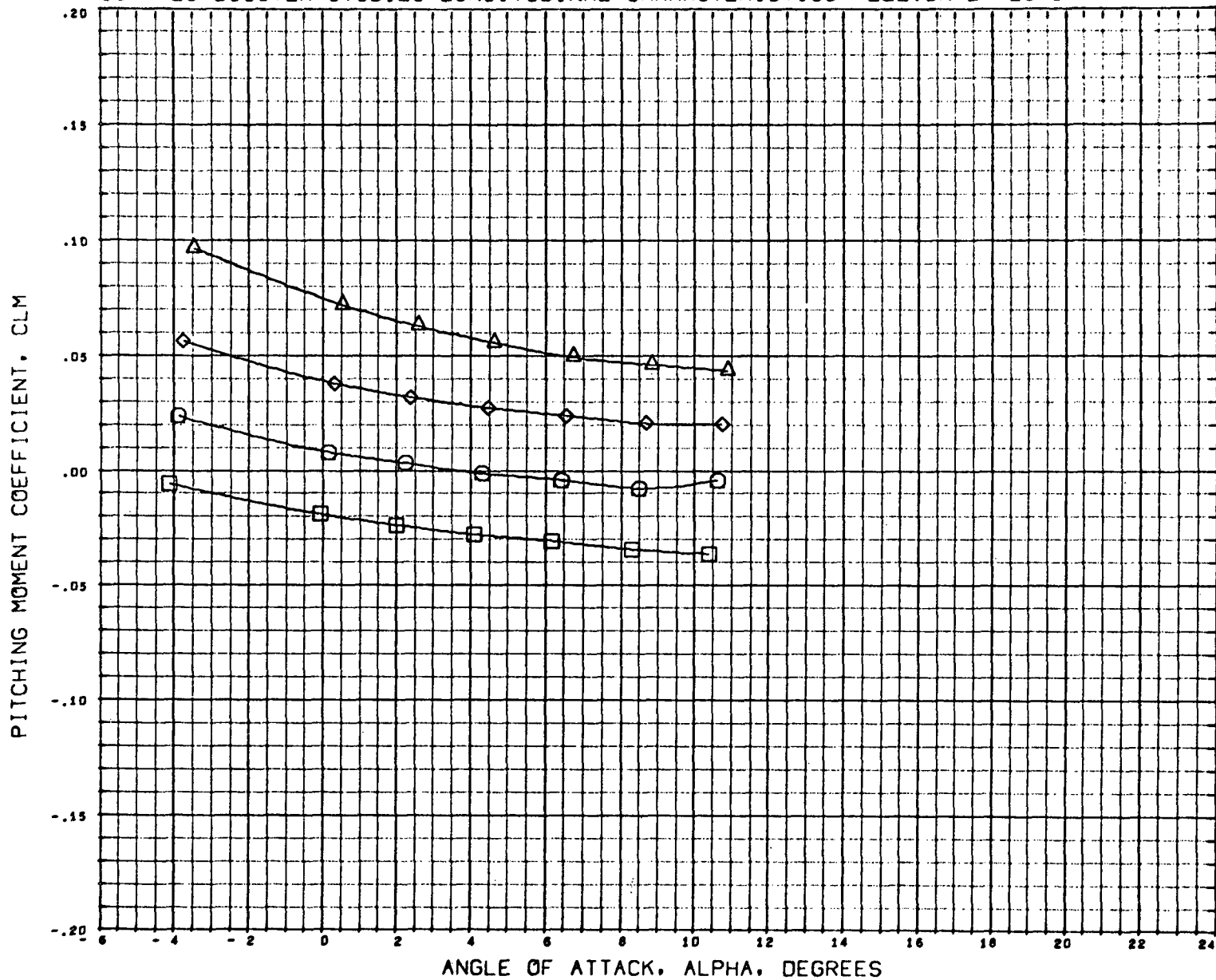
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3013)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3009)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3005)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRF	2.9950 FEET
(RN3017)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRF	0.0000 FEET
						ZMRF	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 1.003

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

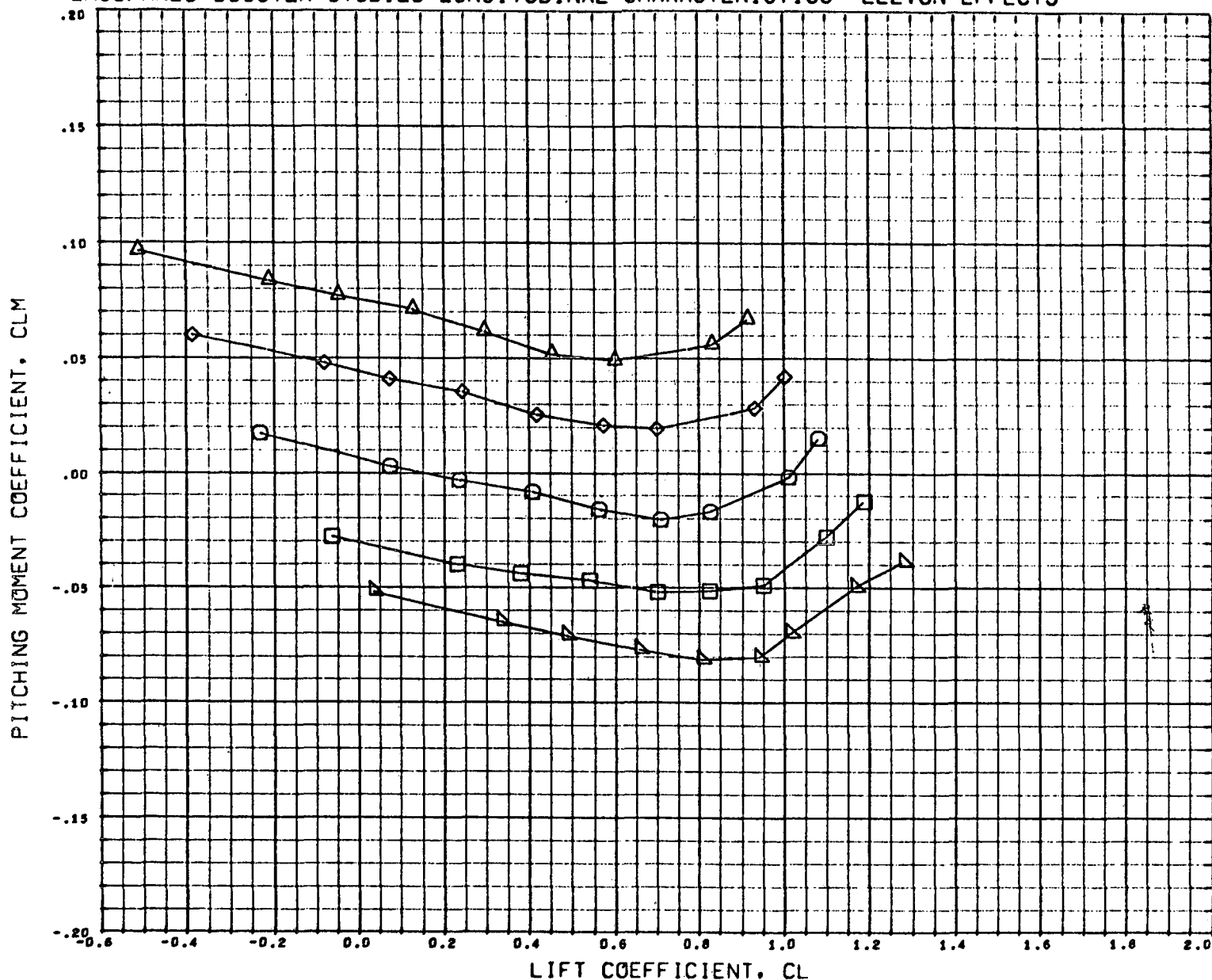


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(R3013)	△	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(R3009)	◇	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF	3.4530 FEET
(R3001)	○	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(R3005)	□	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP	2.5950 FEET
(R3017)	—	DATA NOT AVAILABLE FOR ALL CONDITIONS	20.000	0.000	0.000	0.000	YMRP	0.0000 FEET
							ZMRP	0.0187 FEET
							SCALE	0.0150 SCALE

MACH

1.122

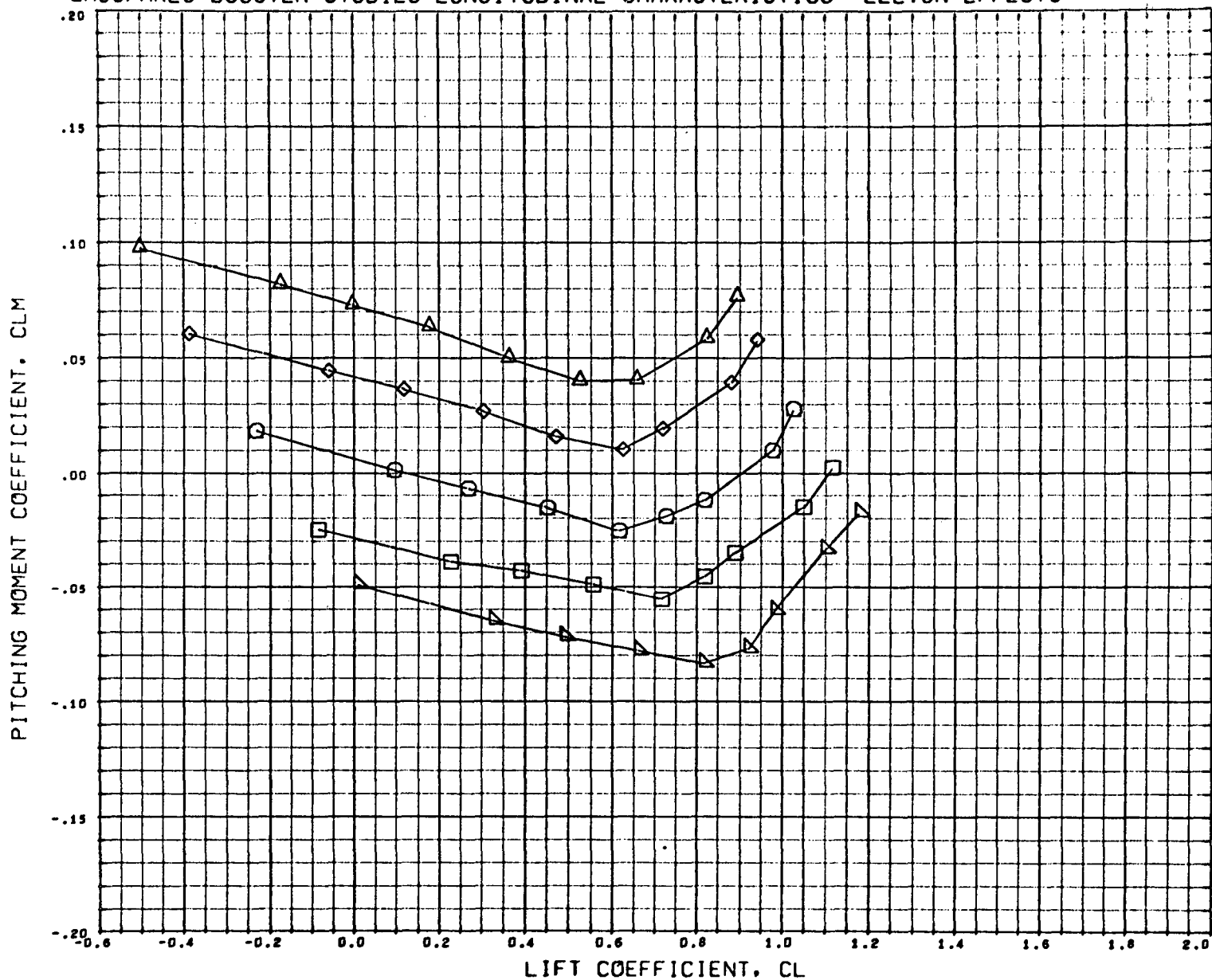
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3013)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3009)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF	3.4330 FEET
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4330 FEET
(RN3005)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP	2.5950 FEET
(RN3017)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.704

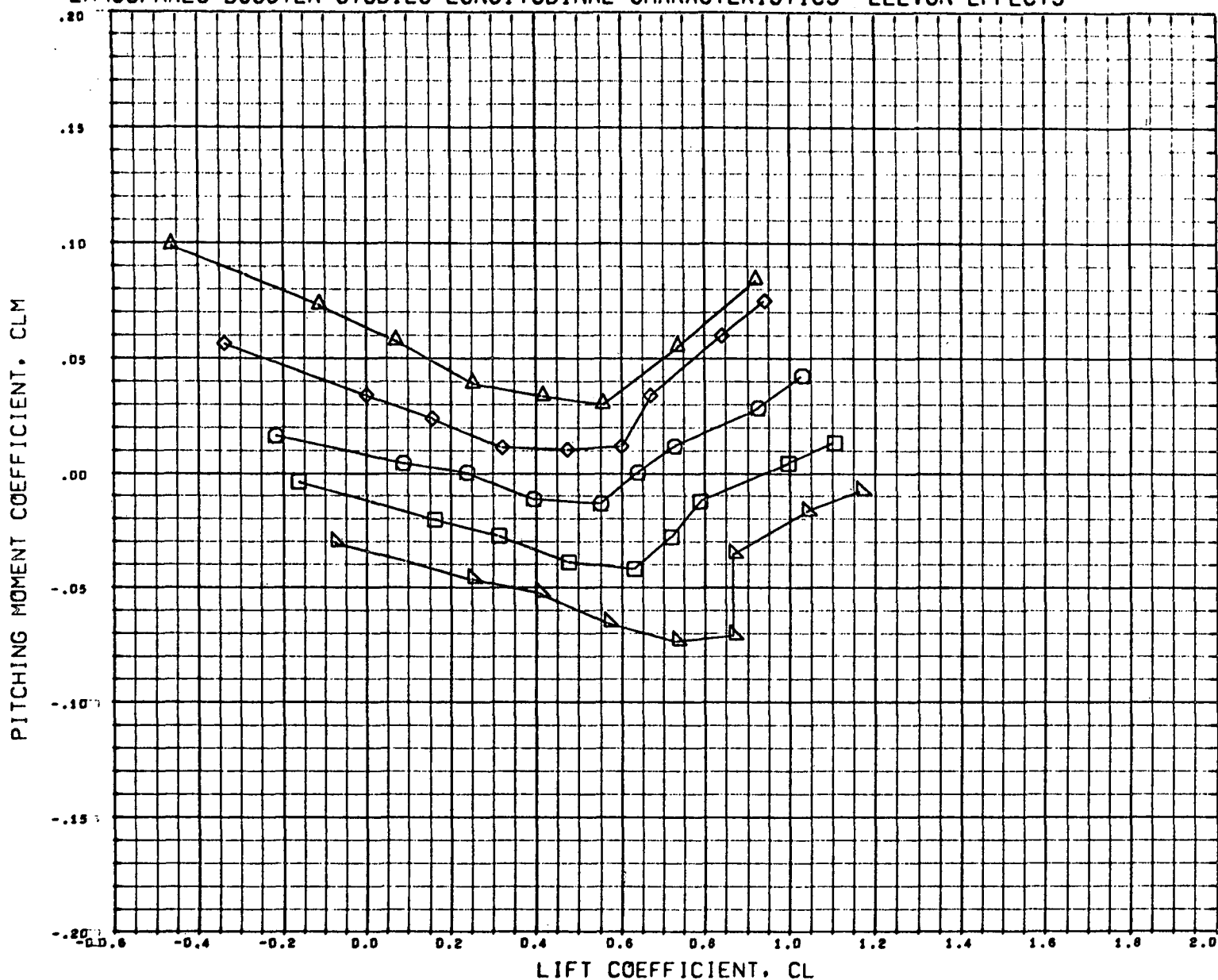
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3013)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3009)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3005)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP	2.5930 FEET
(RN3017)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.800

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

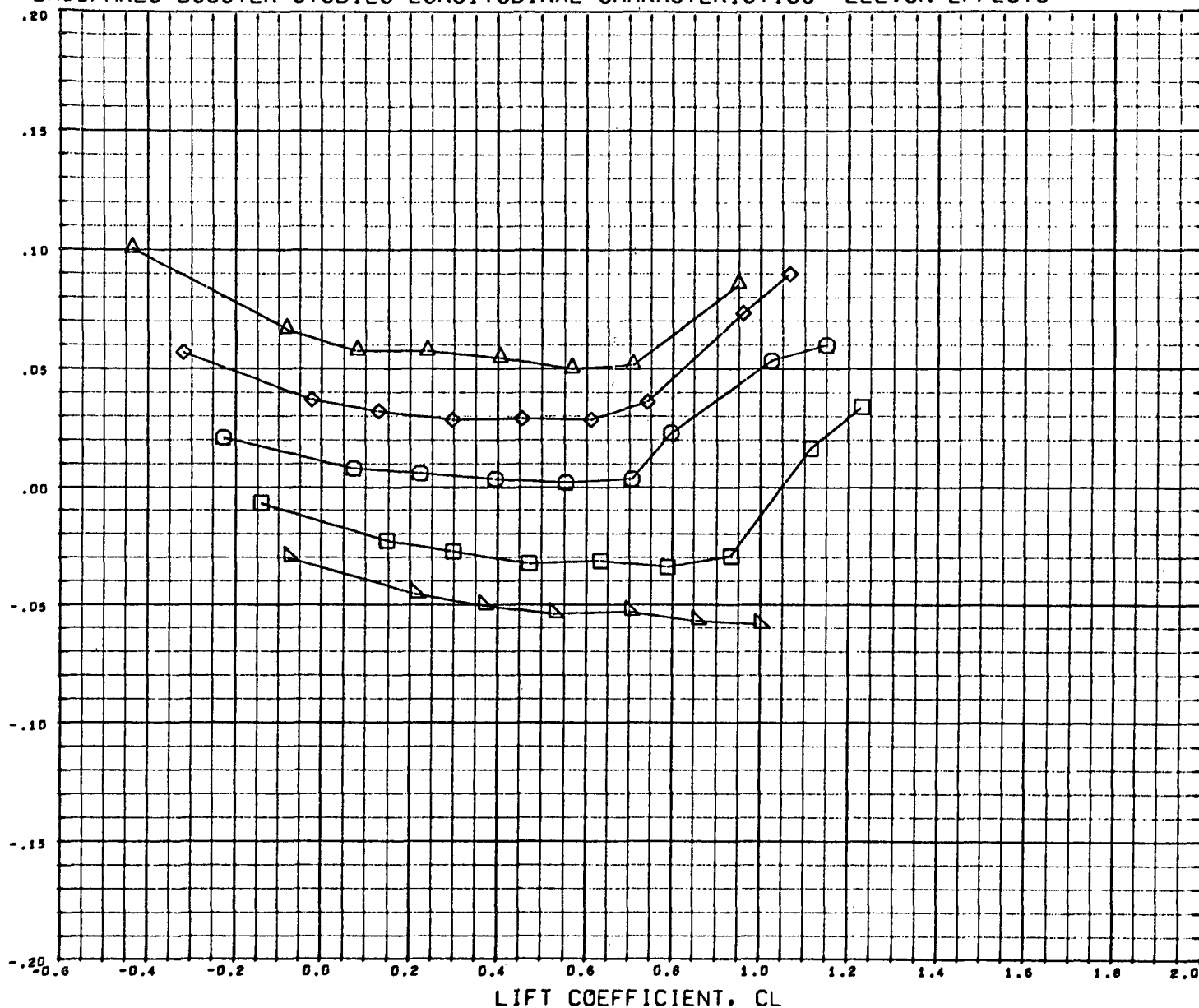


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3013)	▲	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF 1.3550 30.FT.
(RN3009)	◆	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF 3.4530 FEET
(RN3001)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF 3.4530 FEET
(RN3005)	□	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP 2.5950 FEET
(RN3017)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRP 0.0000 FEET
							ZMRP 0.0187 FEET
							SCALE 0.0150 SCALE

MACH 0.903

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

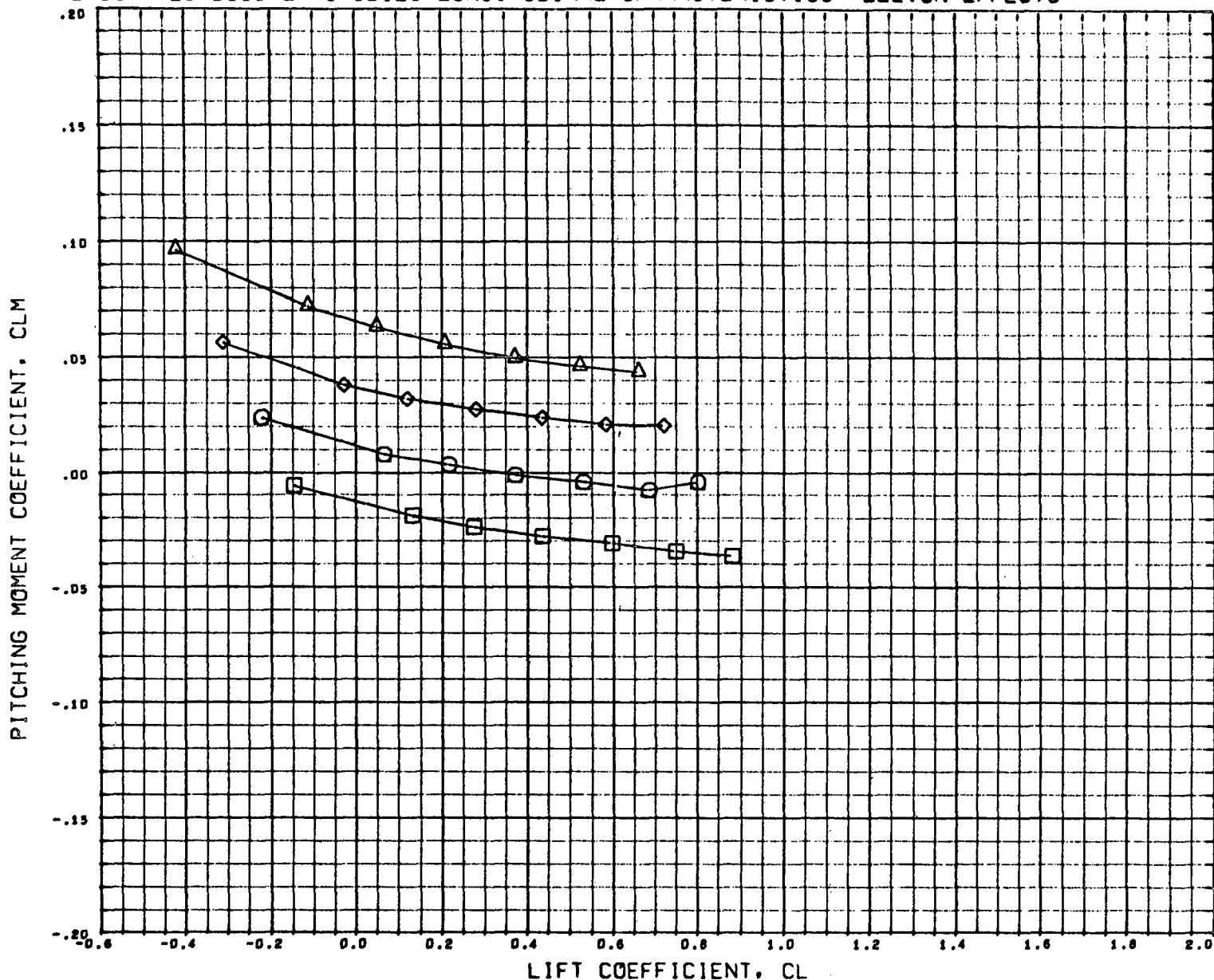
PITCHING MOMENT COEFFICIENT, CLM



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3013)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3009)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3001)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3005)	□	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRF	2.5950 FEET
(RN3017)	▽	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRF	0.0000 FEET
							ZMRF	0.0187 FEET
							SCALE	0.0150 SCALE

MACH 1.003

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

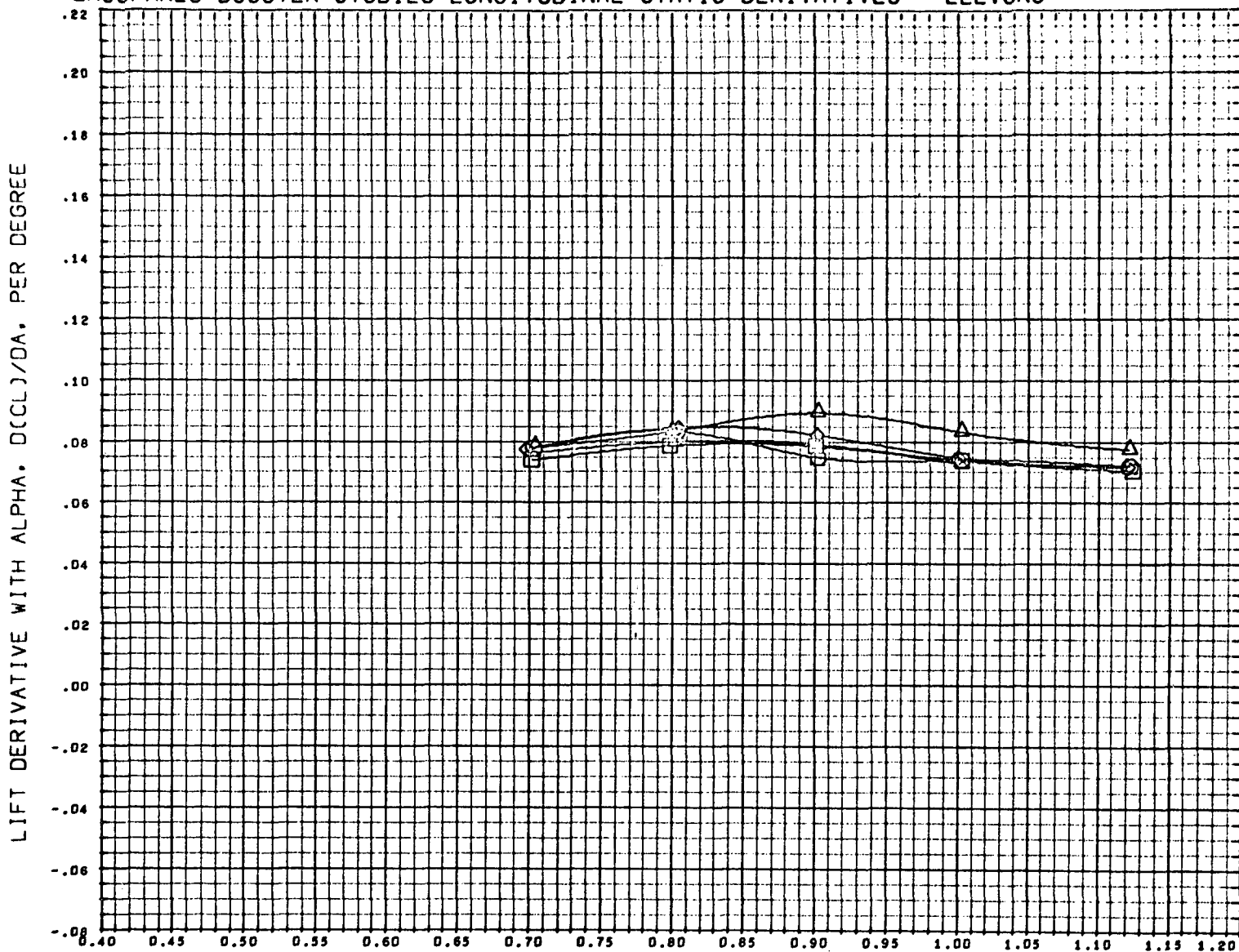


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3013)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3009)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3005)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP	2.9950 FEET
(RN3017)	DATA NOT AVAILABLE FOR ALL CONDITIONS	20.000	0.000	0.000	0.000	YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH

1.122

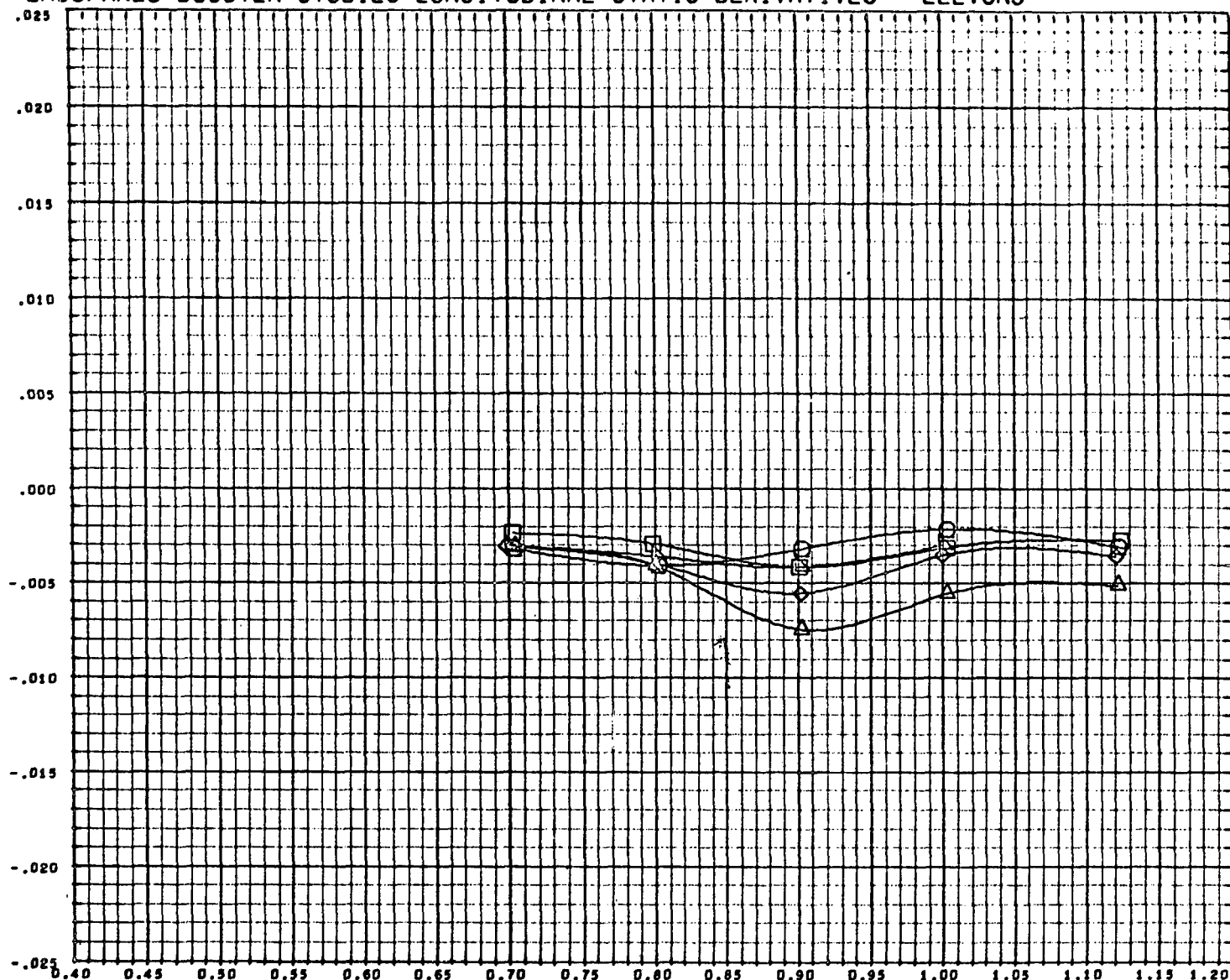
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL STATIC DERIVATIVES - ELEVONS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3013)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(RN3009)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3001)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3005)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP	2.5950 FEET
(RN3017)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL STATIC DERIVATIVES - ELEVONS

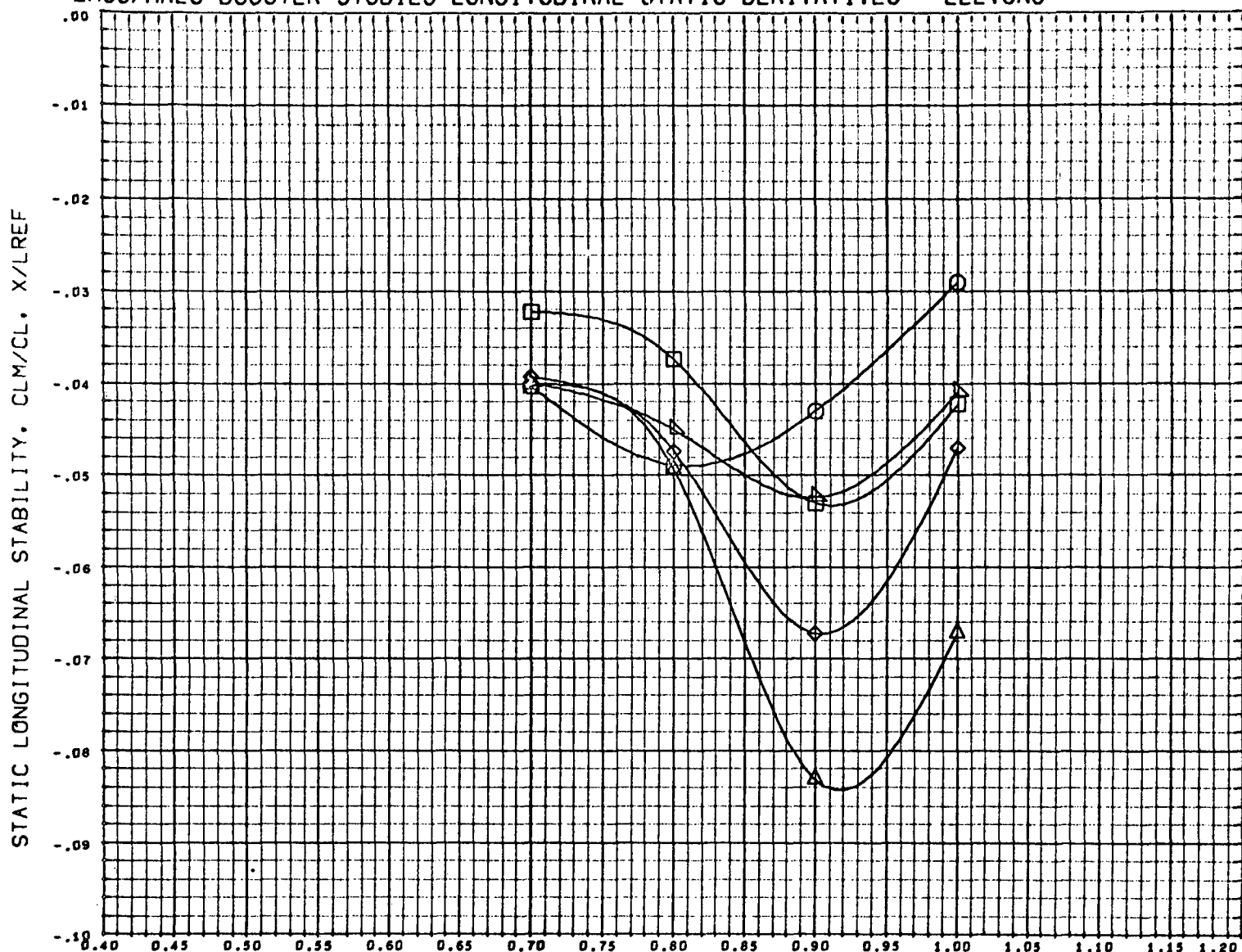
PITCHING MOMENT DERIVATIVE WITH ALPHA, DC_{CLM}/DA , PER DEGREE



MACH NUMBER

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION		
(RN3013)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	-20.000	0.000	0.000	0.000	SREF	1.3550	SQ. FT.
(RN3009)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF	3.4530	FEET
(RN3001)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530	FEET
(RN3005)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP	2.9950	FEET
(RN3017)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRP	0.0000	FEET
						ZMRP	0.0187	FEET
						SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL STATIC DERIVATIVES - ELEVONS



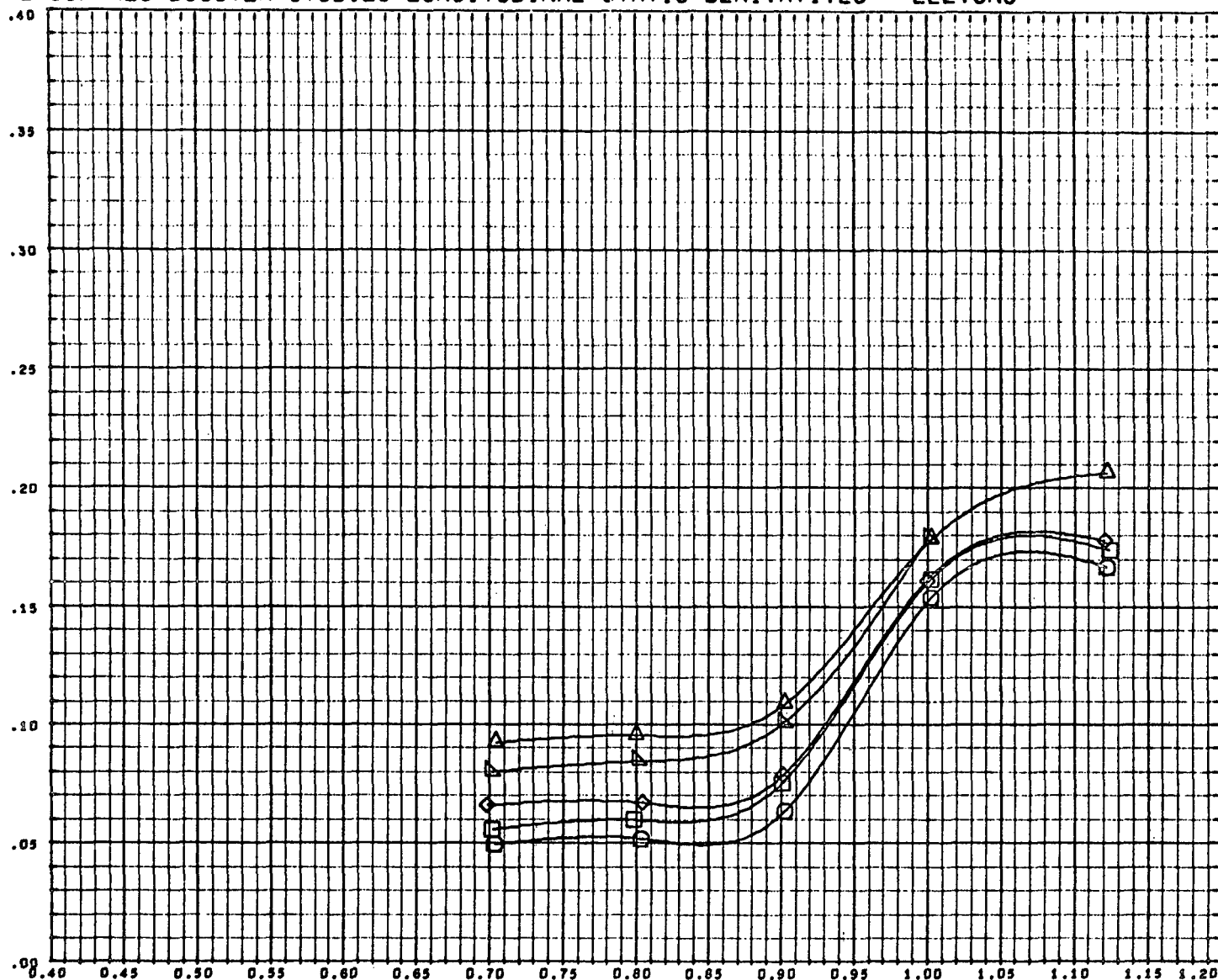
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(TN3009)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF	3.4530 FEET
(TN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(TN3005)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP	2.5950 FEET
(TN3017)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
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ALPHA 0.000

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL STATIC DERIVATIVES - ELEVONS

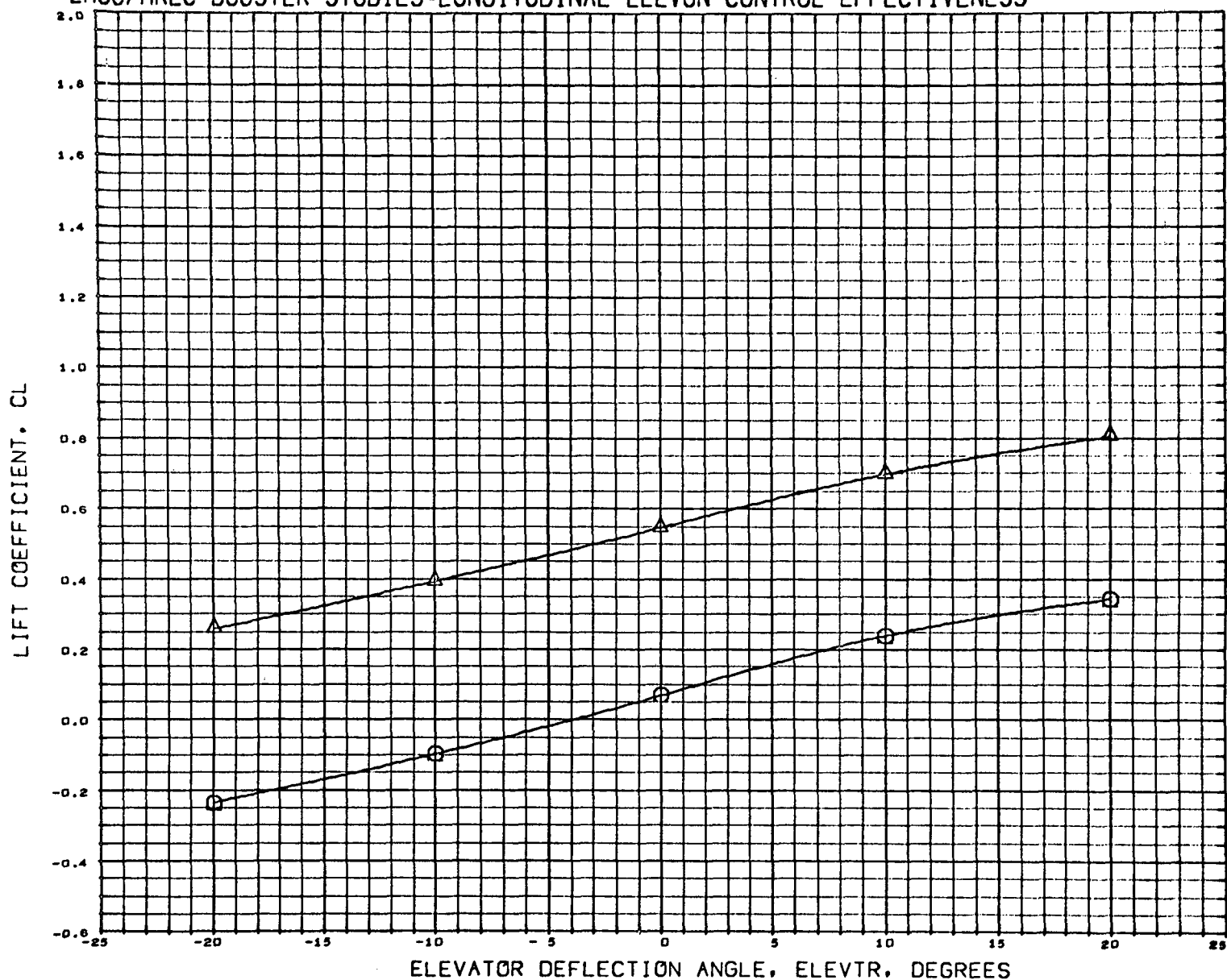
ZERO ANGLE OF ATTACK DRAG COEFFICIENT, CD(ALPHA=0) (CDALF0)



MACH NUMBER

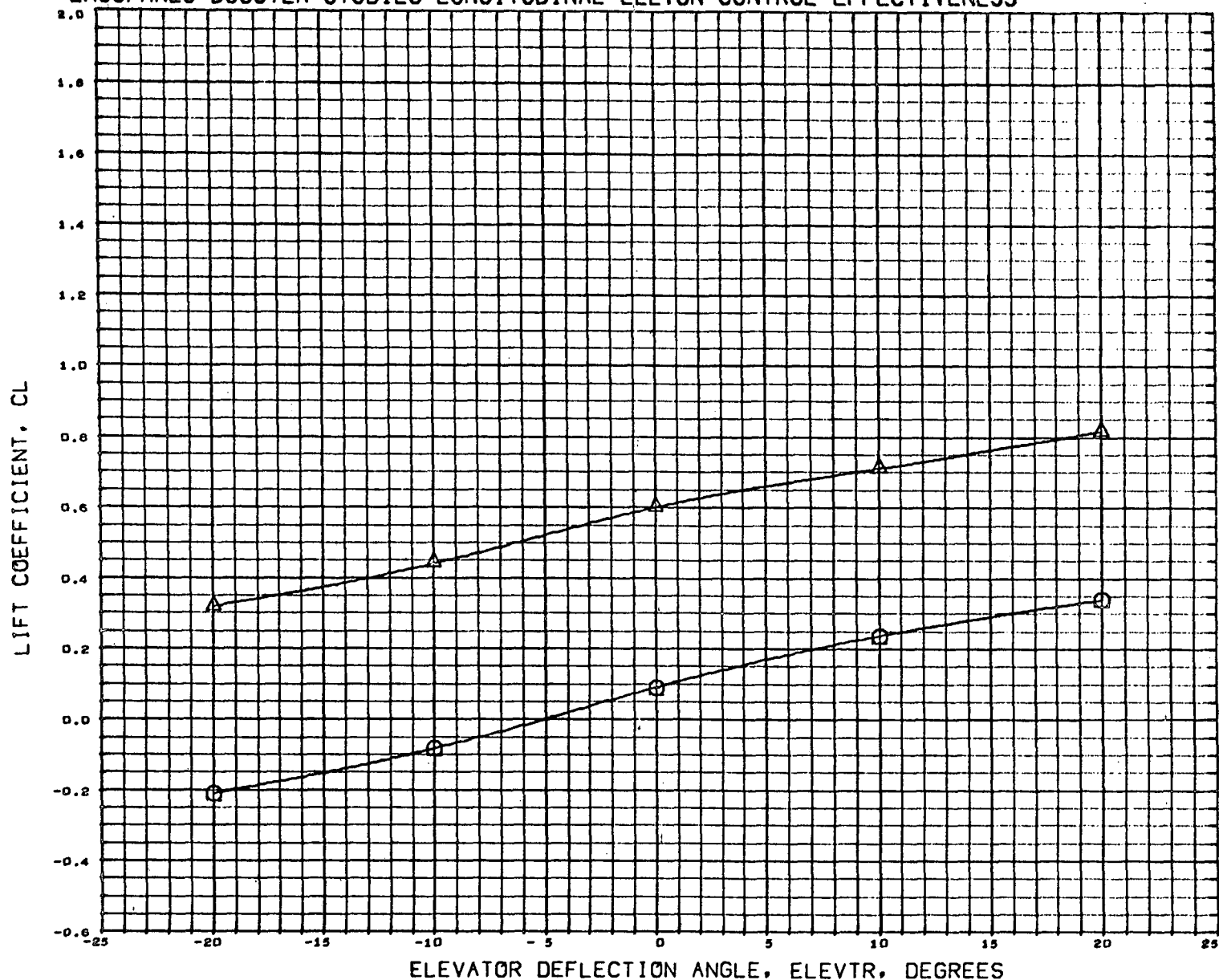
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(BN3009)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	-10.000	0.000	0.000	0.000	LREF	3.4530	FEET
(BN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530	FEET
(BN3005)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	0.000	XMRP	2.5950	FEET
(BN3017)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	0.000	YMRP	0.0000	FEET
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LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



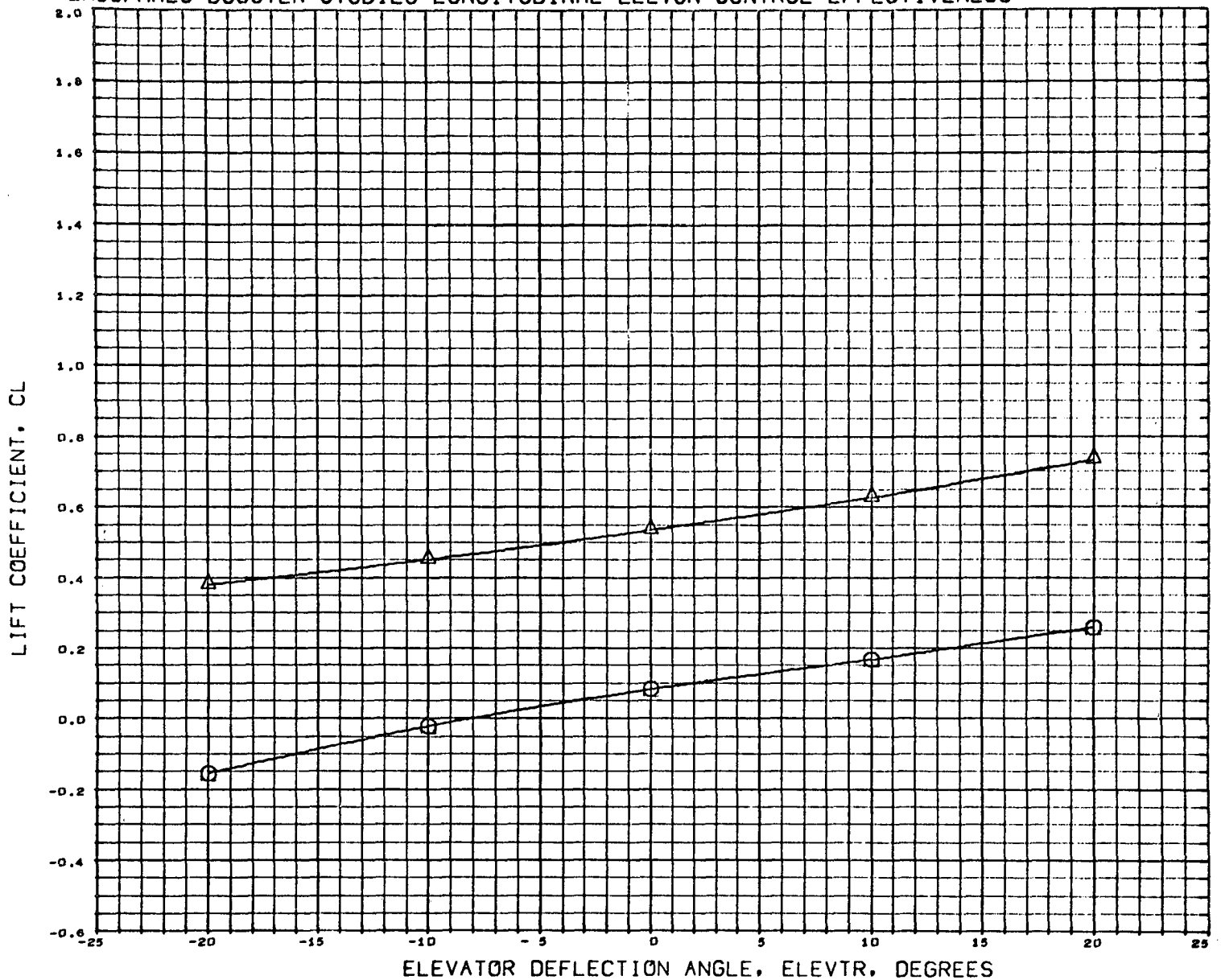
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		MSFLOW	0.000	AILRON	0.000	MN3001	0.000	MN3005	10.000	BREF	3.4530	FEET
		CANARD	0.000	RUDDER	0.000	NN3017	20.000			XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
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LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



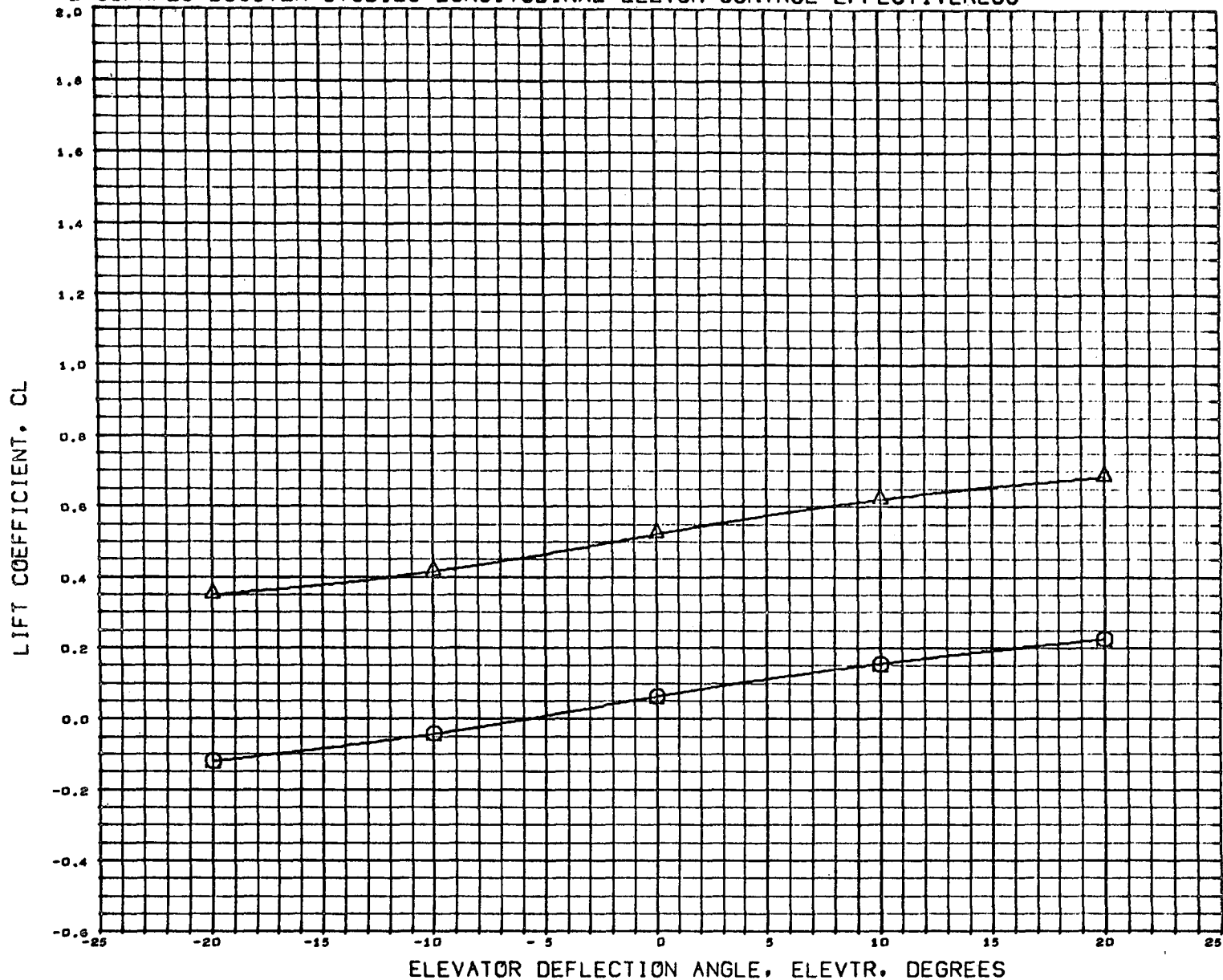
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	6.000	INCIDC	3.000	INCIDW	0.000	MN3013	- 20.000	MN3009	- 10.000	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	MN3001	0.000	MN3005	10.000	BREF	3.4530	FEET
		CANARD	0.000	RUDDER	0.000	NN3017	20.000			XMRP	2.5950	FEET
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LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



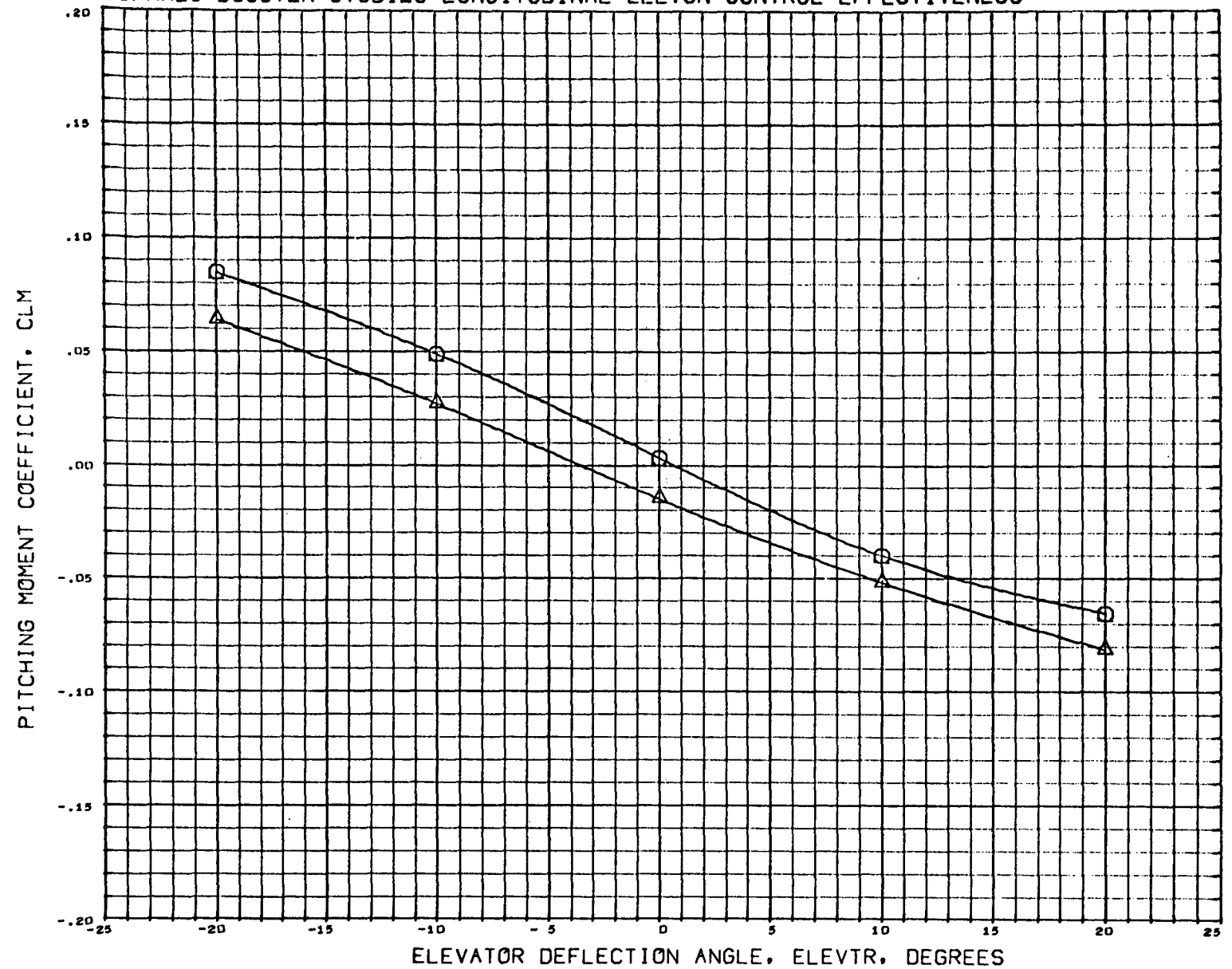
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		MSFLOW	0.000	AILRON	0.000	MN3001	0.000	MN3005	10.000	BREF	3.4530	FEET
		CANARD	0.000	RUDDER	0.000	NN3017	20.000			XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
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LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



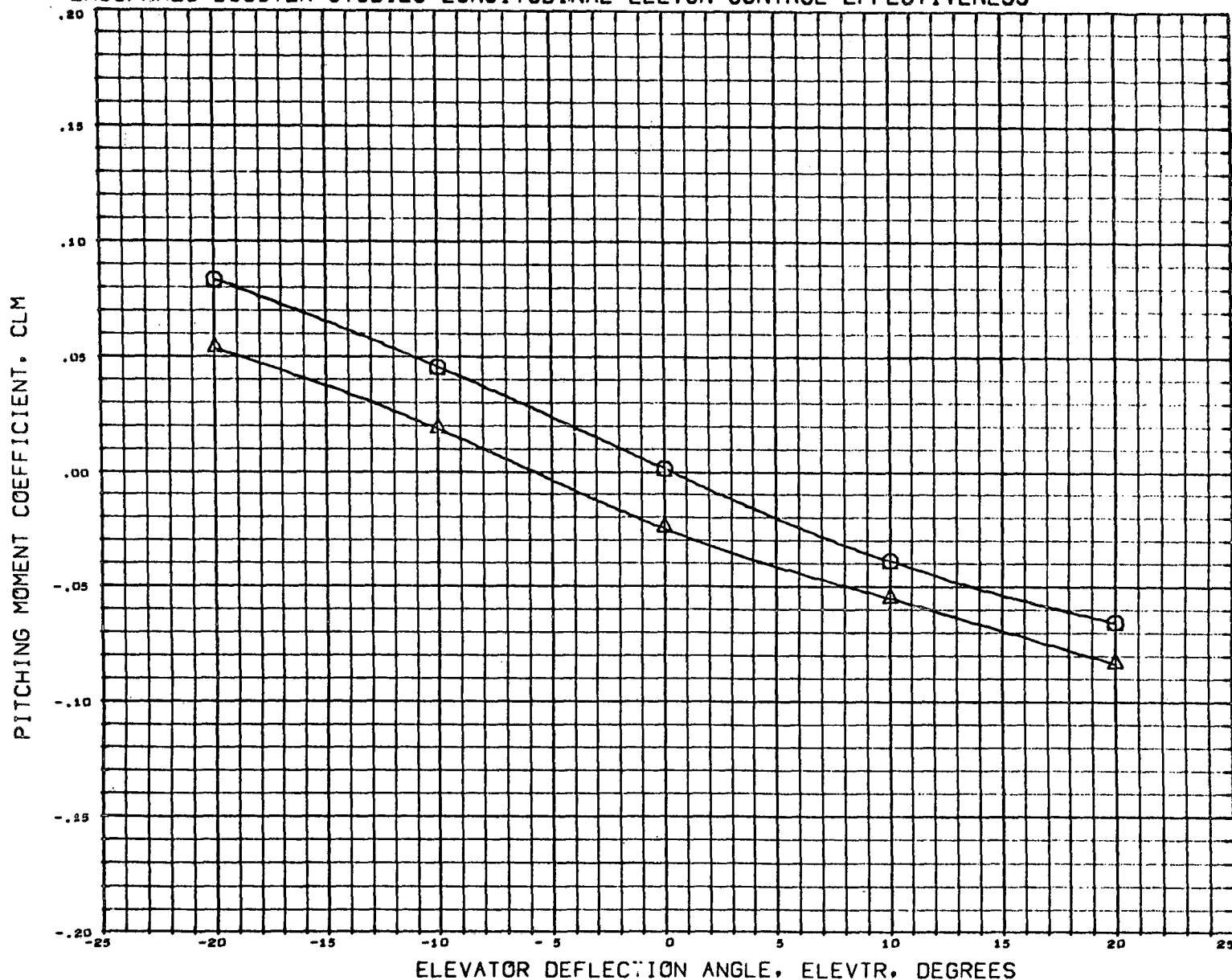
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		CANARD	0.000	RUDDER	0.000	NN3017	20.000			XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
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LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



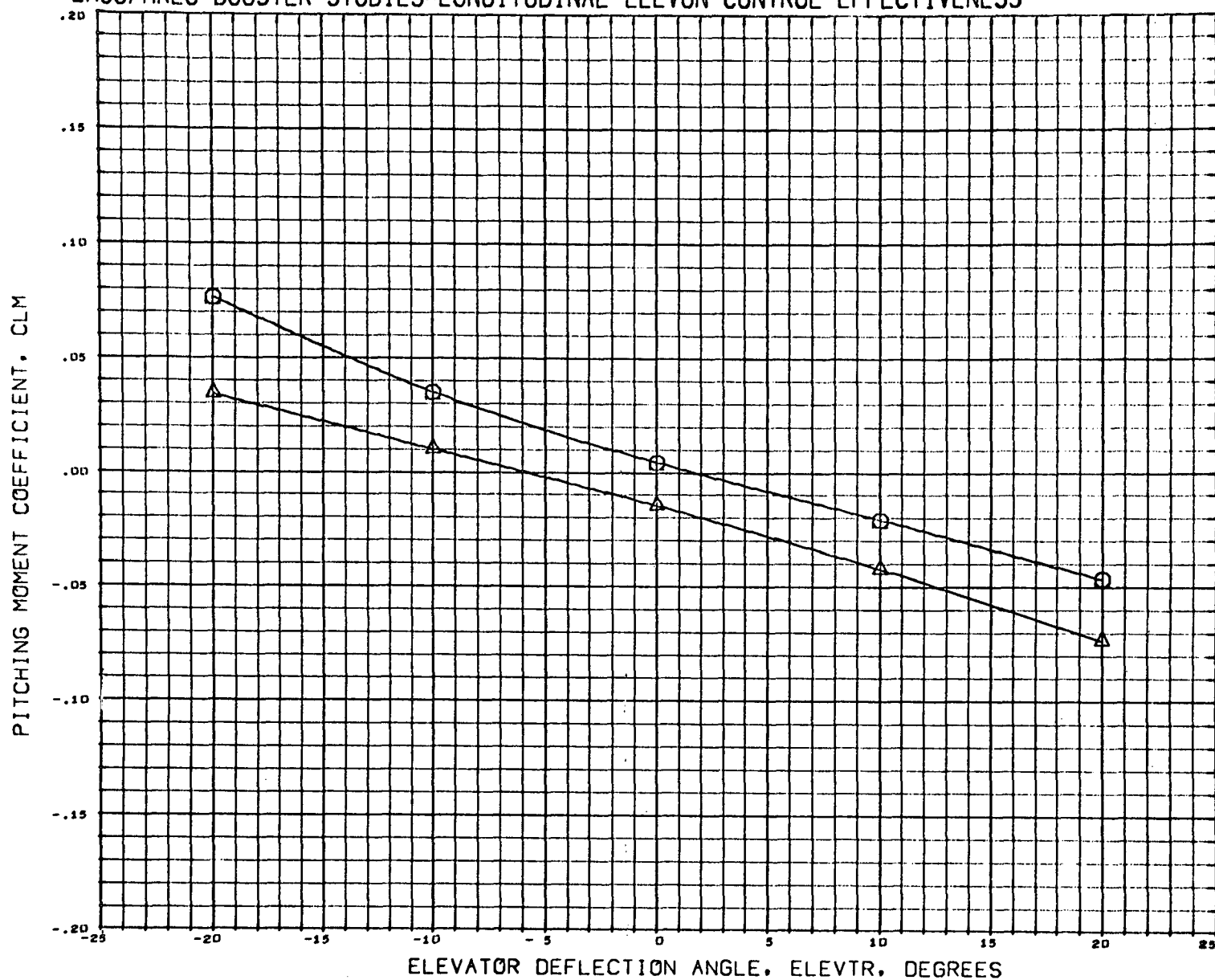
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		CANARD	0.000	RUDDER	0.000	MN3017	20.000			XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
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LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



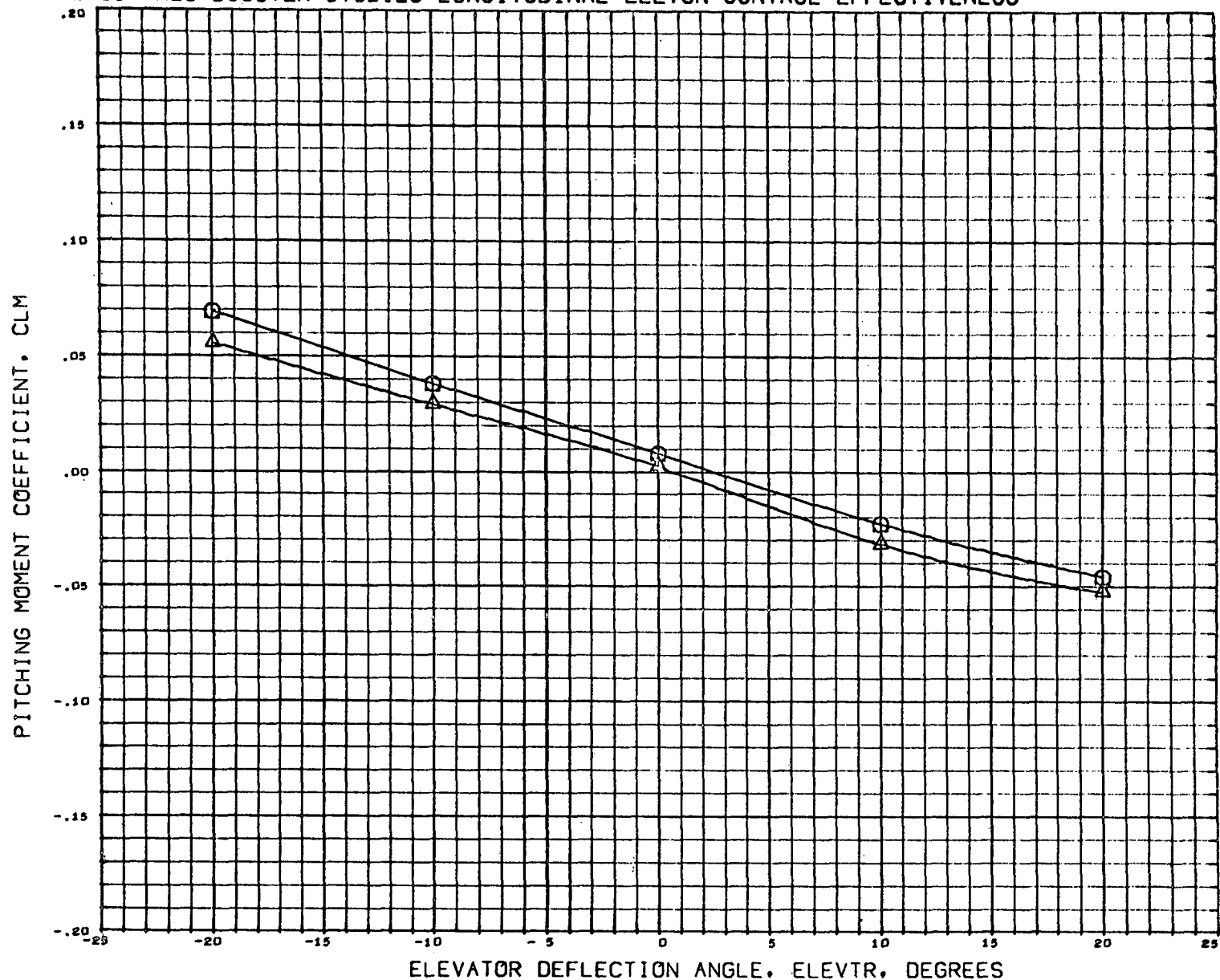
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		MSFLOW	0.000	AILRON	0.000	MN3001	0.000	MN3005	10.000	BREF	3.4530	FEET
		CANARD	0.000	RUDDER	0.000	NN3017	20.000			XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
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LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



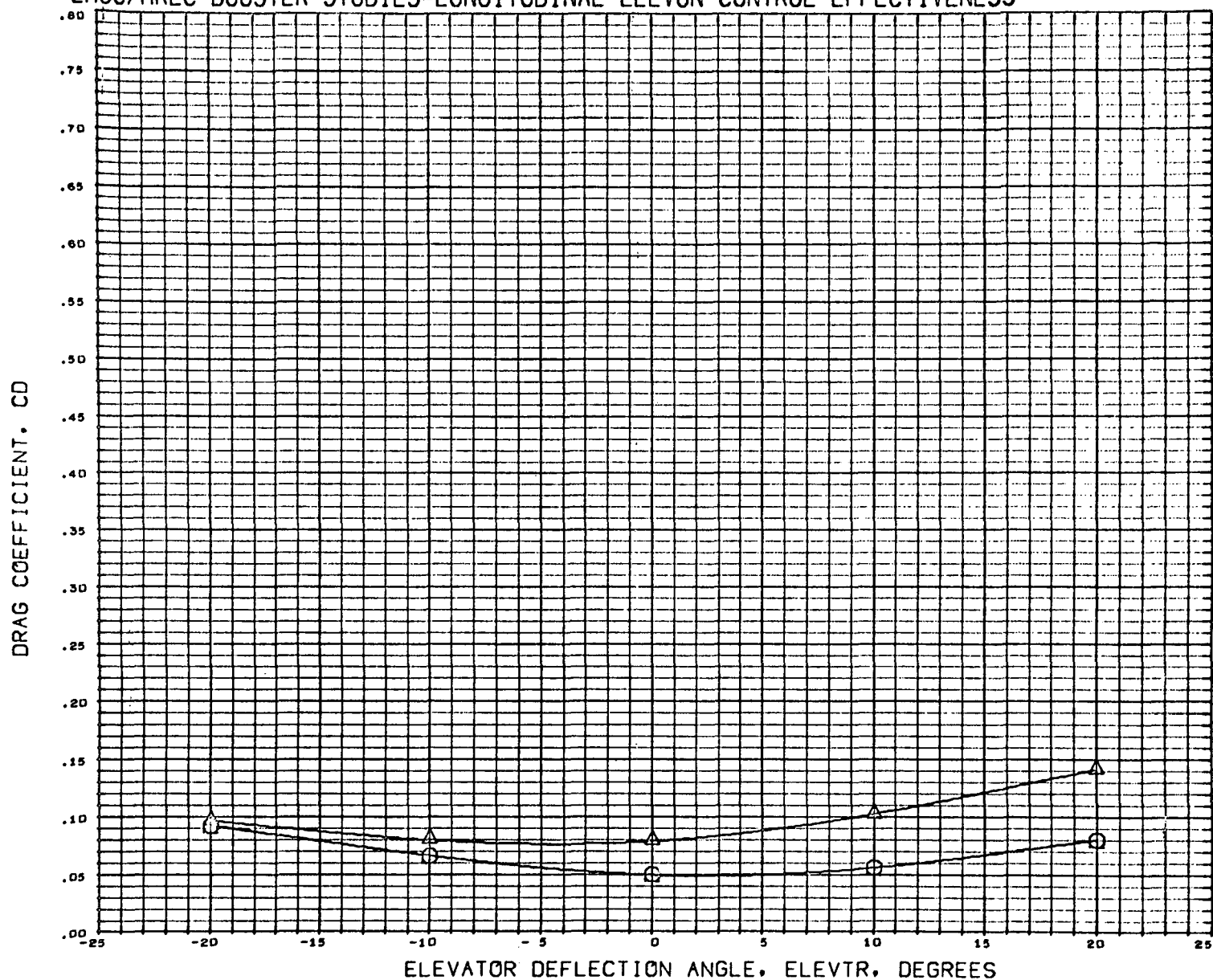
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		MSFLOW	0.000	AILRON	0.000	MN3001	0.000	BREF	3.4530	FEET
		CANARD	0.000	RUDDER	0.000	MN3017	20.000	XMRF	2.5950	FEET
		WINGPOS	1.000	CNDPOS	1.000			YMRF	0.0000	FEET
		DATA HIST. CODE	I#A					ZMRF	0.0187	FEET
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LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



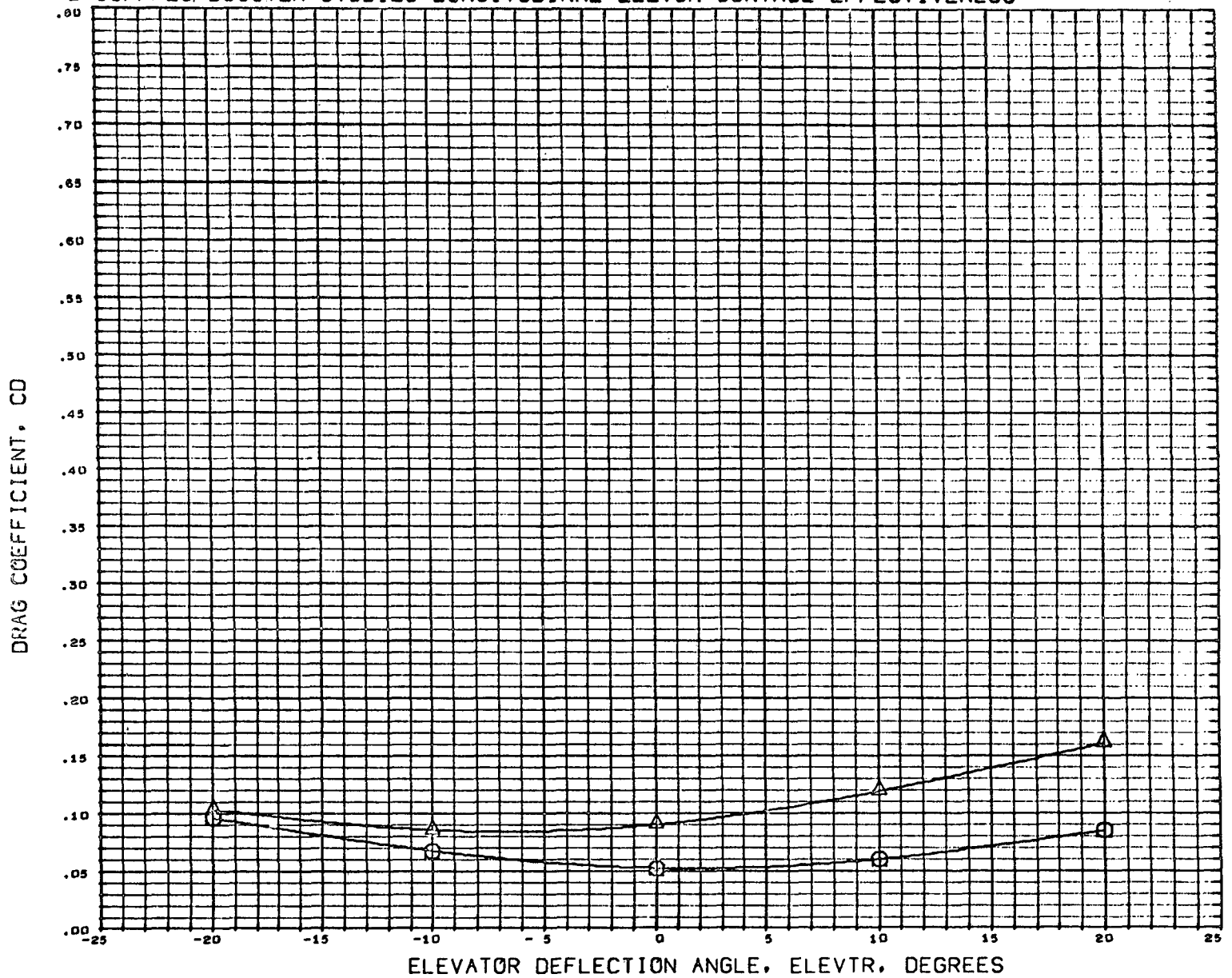
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Δ	6.000	INCIOC	3.000	INCIDW	0.000	MN3013	- 20.000	MN3009	- 10.000	LREF	3.4530	FEET	
		MSFLOW	0.000	AILRON	0.000	MN3001	0.000	MN3005	10.000	BREF	3.4530	FEET	
		CANARD	0.000	RUDDER	0.000	MN3017	20.000			XMRP	2.5950	FEET	
		WNGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET	
		DATA HIST. CODE	1#A							ZMRP	0.0187	FEET	
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LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



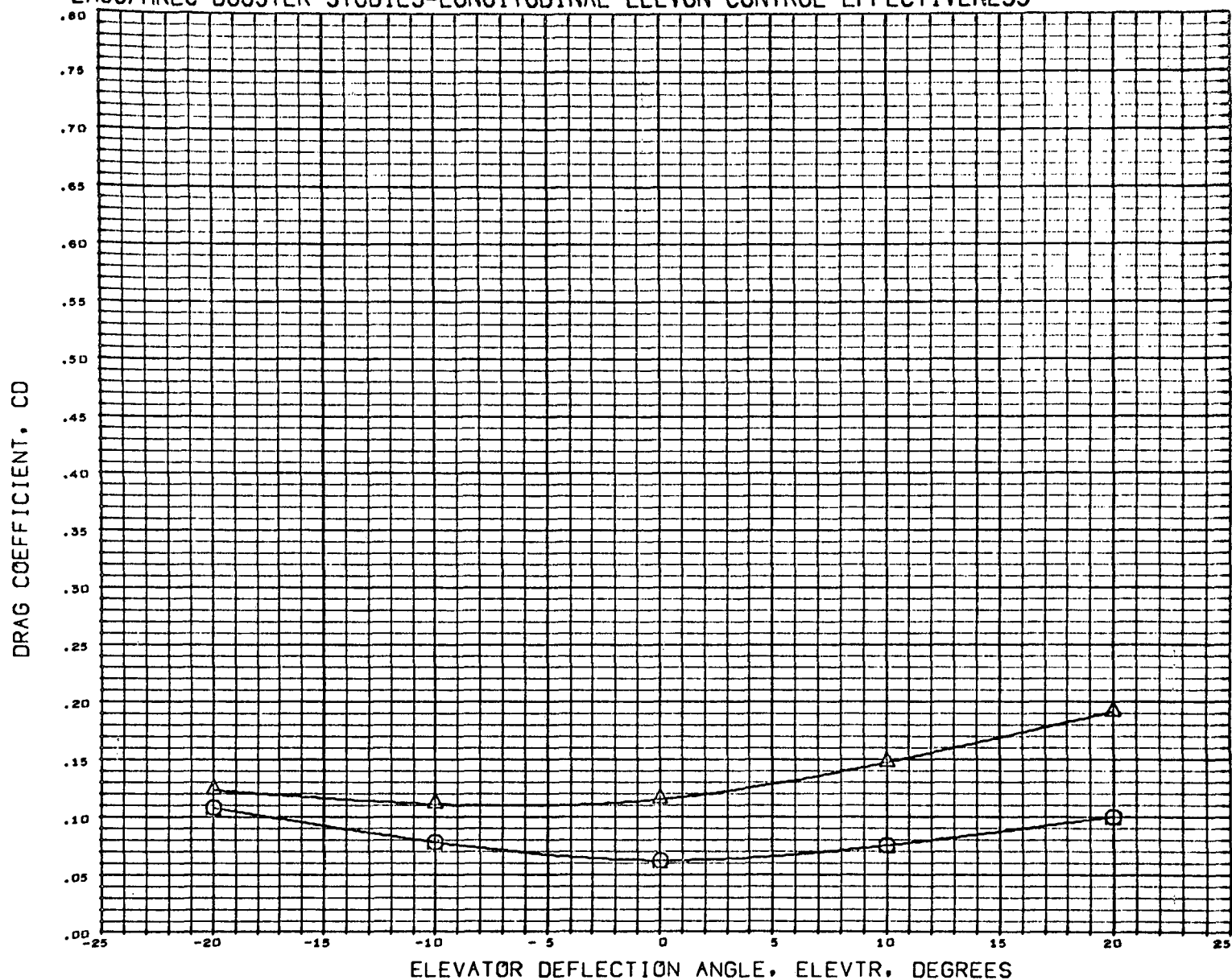
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		MSFLOW	0.000	AILRON	0.000	MN3001	0.000	MN3005	10.000	BREF	3.4530	FEET
		CANARD	0.000	RUDDER	0.000	NN3017	20.000			XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
		DATA HIST. CODE	I*4							ZMRP	0.0187	FEET
										SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES	DATA SOURCE	REFERENCE INFORMATION
O	0.000	MACH 0.000 BETA - 0.012	DATASET ELEVTR DATASET ELEVTR	SREF 1.3550 SQ.FT.
Δ	6.000	INCIDC 3.000 INCIDW 0.000 MN3013 - 20.000 MN3009 - 10.000		LREF 3.4930 FEET
		MSFLOW 0.000 AILRON 0.000 MN3001 0.000 MN3005 10.000		BREF 3.4930 FEET
		CANARD 0.000 RUDDER 0.000 NN3017 20.000		XMRF 2.5950 FEET
		WNGPOS 1.000 CNDPOS 1.000		YMRF 0.0000 FEET
		DATA HIST. CODE 1#A		ZMRF 0.0187 FEET
				SCALE 0.0150 SCALE

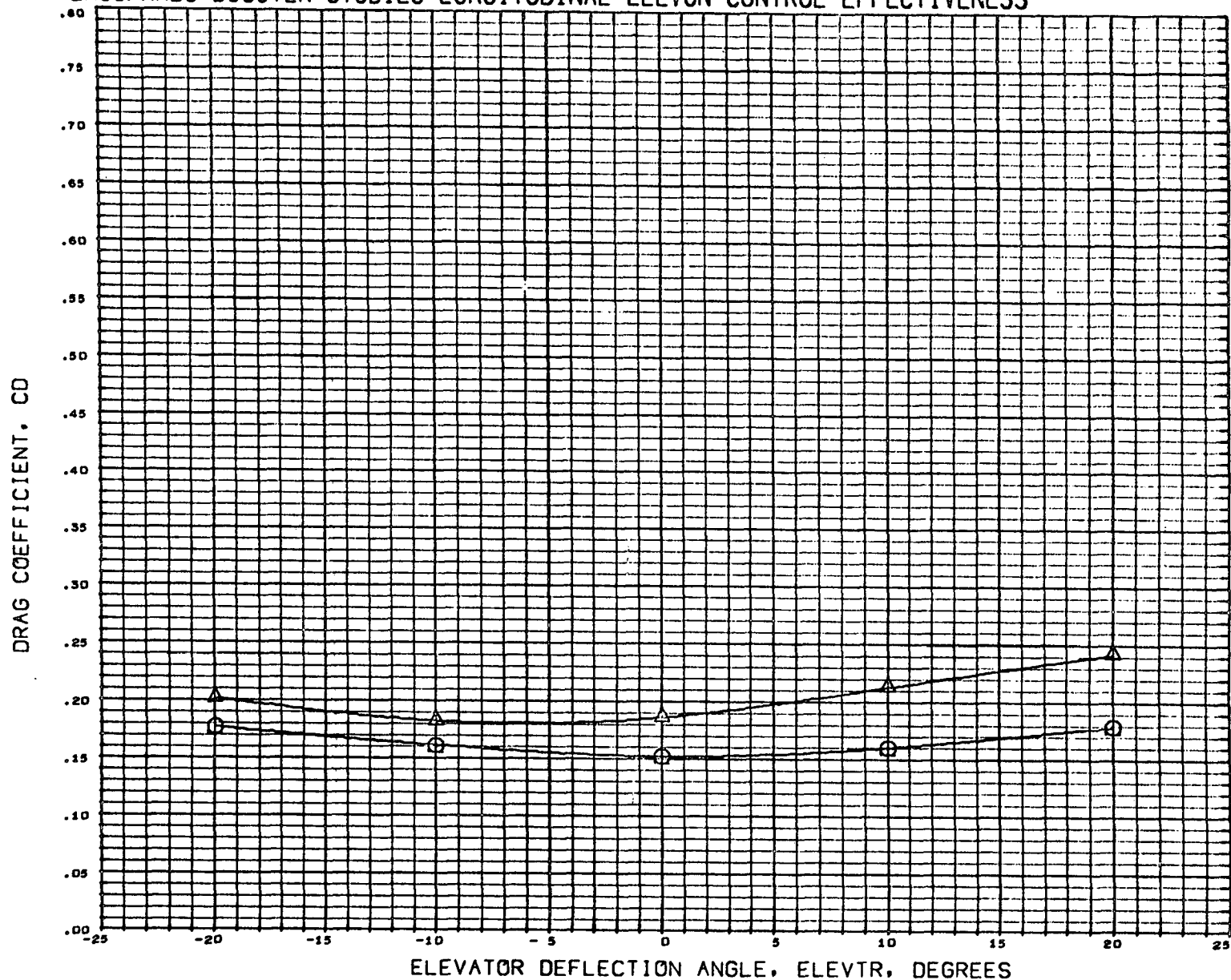
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



ELEVATOR DEFLECTION ANGLE, ELEVTR, DEGREES

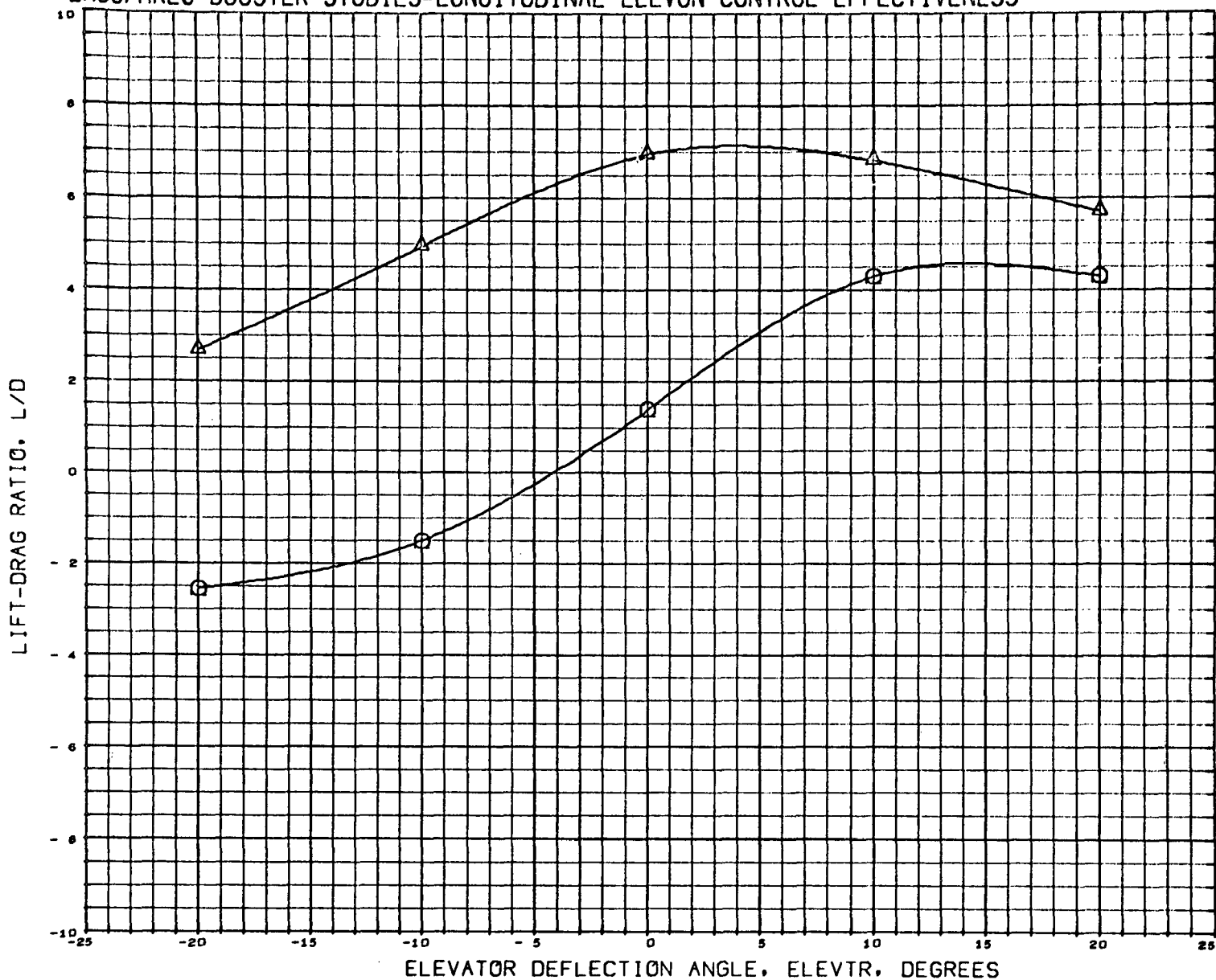
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		HSFLOW	0.000	AILRON	0.000	MN3001	0.000	MN3005	10.000	BREF	3.4530	FEET
		CANARD	0.000	RUDDER	0.000	NN3017	20.000			XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
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LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



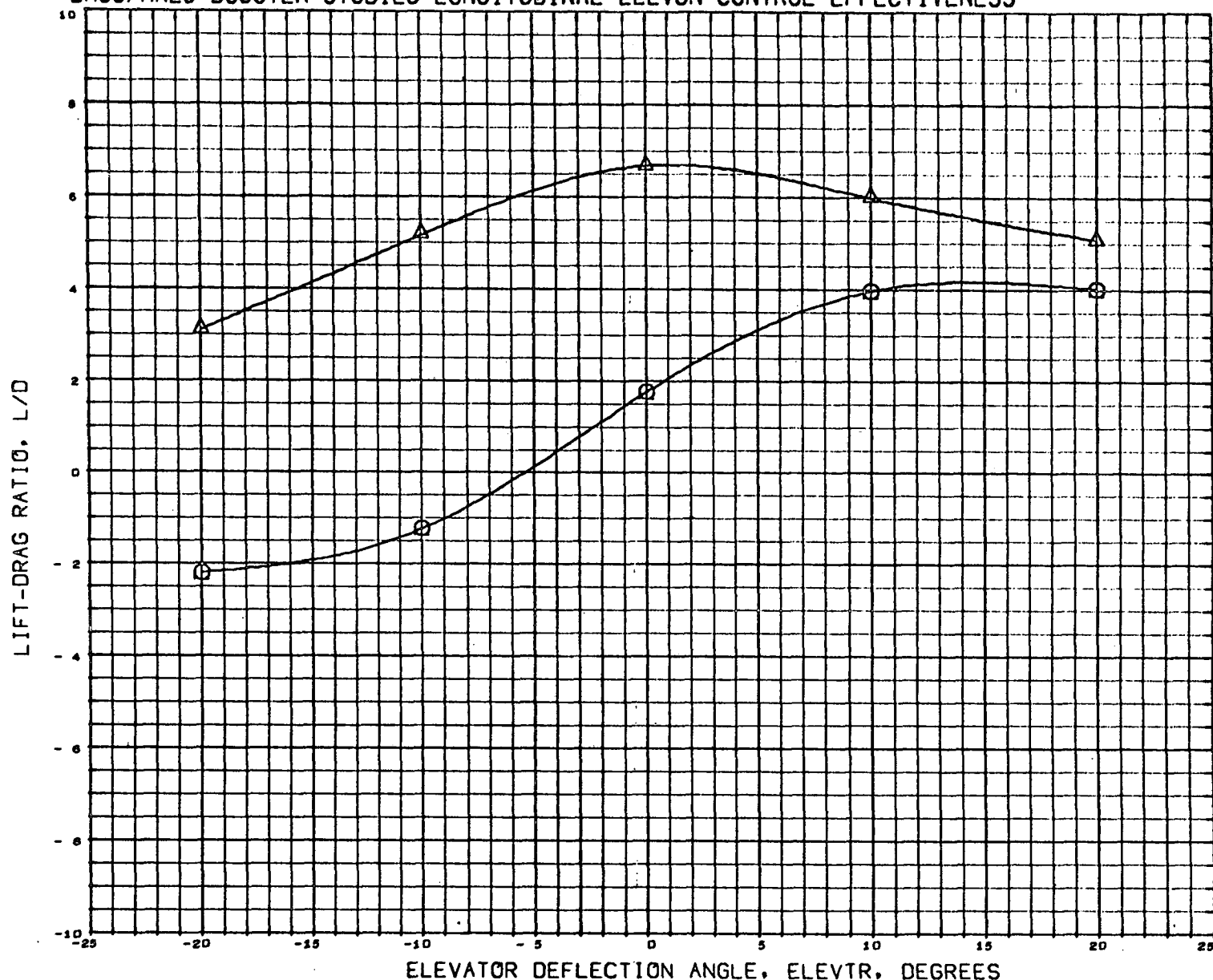
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		MSFLOW	0.000	AILRON	0.000	MN3001	0.000	MN3005	10.000	BREF	3.4530	FEET
		CANARD	0.000	RUDDER	0.000	MN3017	20.000			XMRP	2.5950	FEET
		WINGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
										ZMRP	0.0187	FEET
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LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



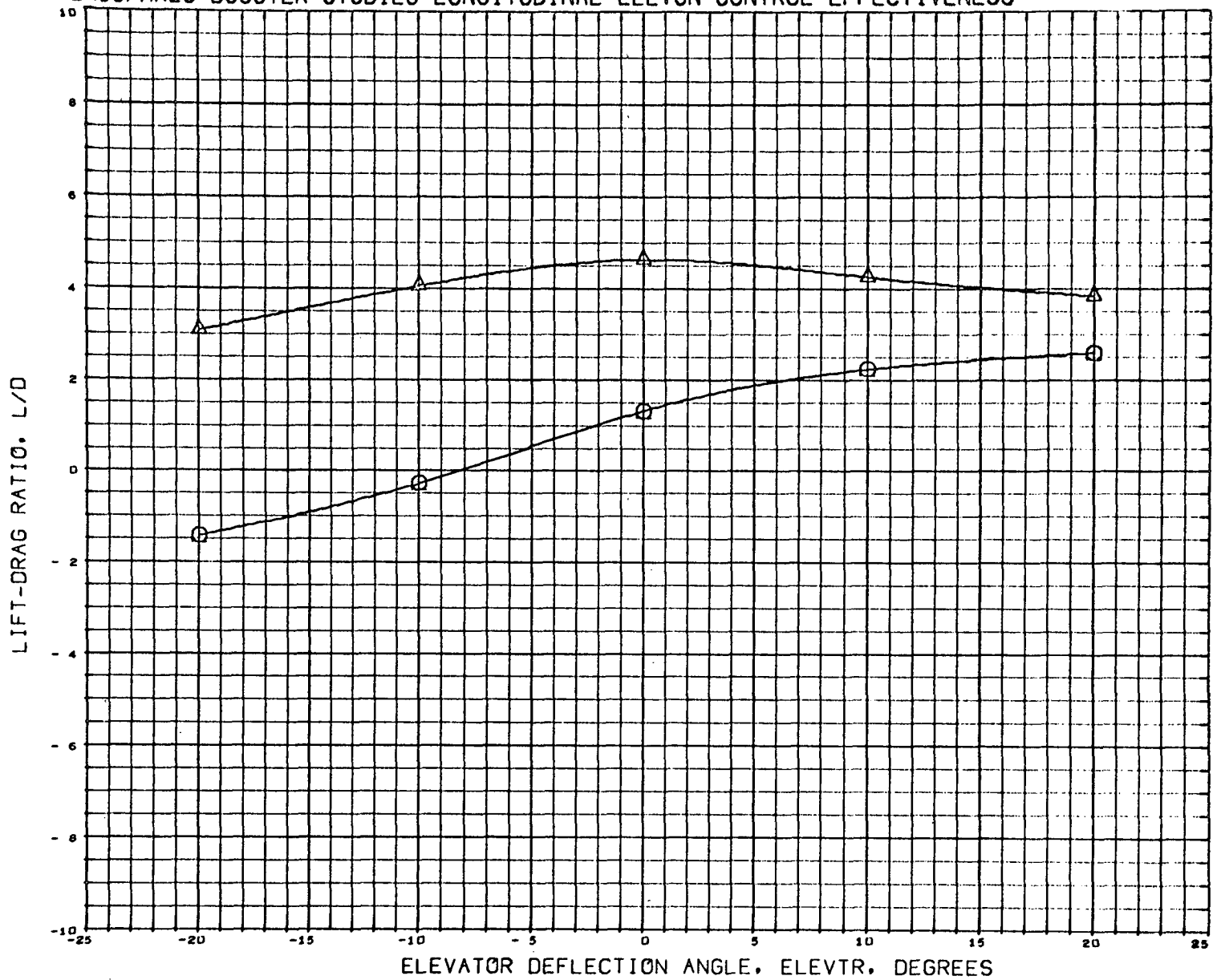
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		MSFLOW	0.000	AILRON	0.000	MN3001	0.000	MN3005	10.000	BREF	3.4530	FEET
		CANARD	0.000	RUDDER	0.000	MN3017	20.000			XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
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LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



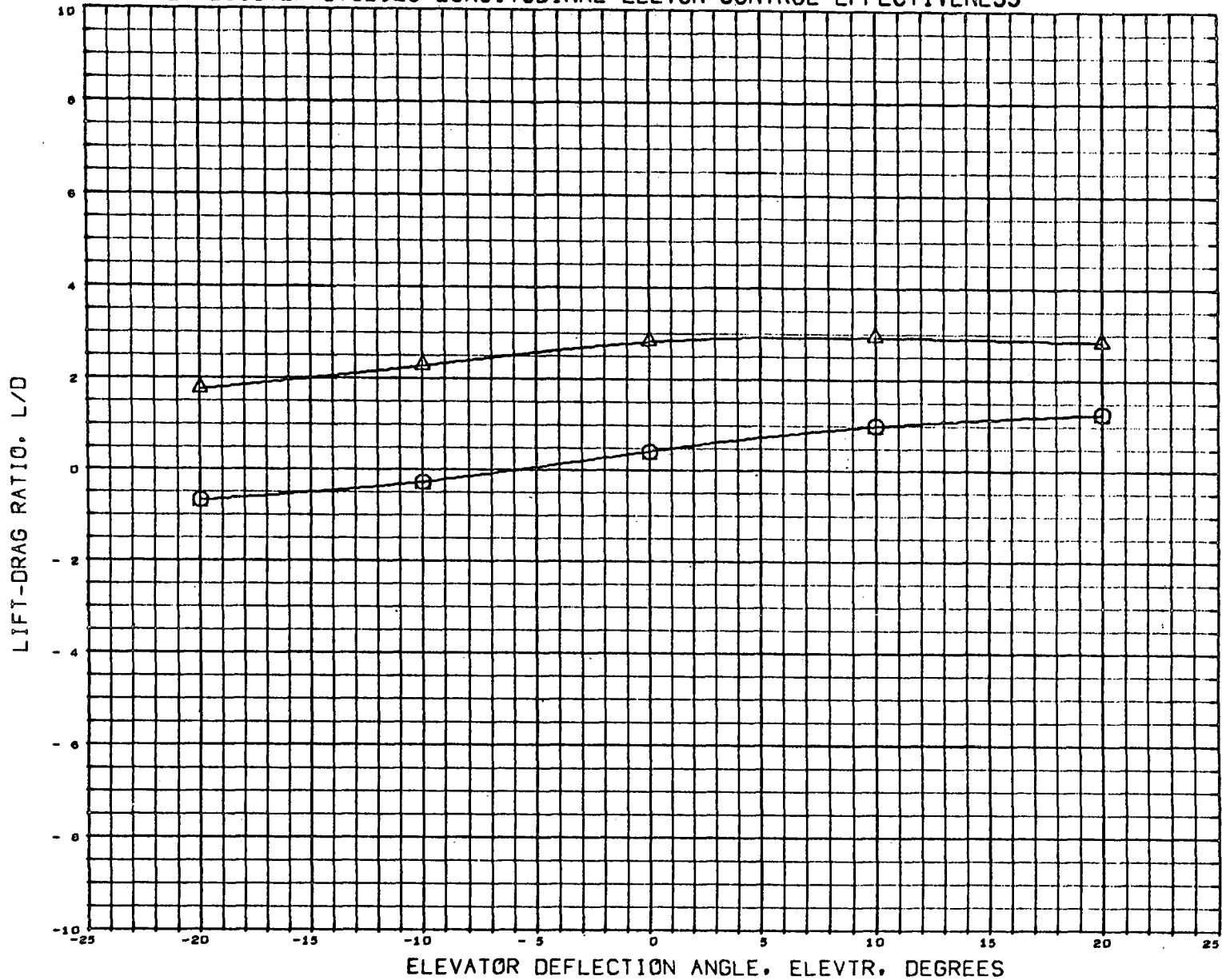
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		MSFLOW	0.000	AILRON	0.000	MN3001	0.000	MN3005	10.000	BREF	3.4530	FEET
		CANARD	0.000	RUDDER	0.000	NN3017	20.000			XMRF	2.5950	FEET
		WNGPOS	1.000	CNDFOS	1.000					YMRF	0.0000	FEET
		DATA HIST. CODE	I#A							ZMRF	0.0187	FEET
										SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE				REFERENCE INFORMATION		
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△	6.000	INCIDC	3.000	INCIDW	0.000	MN3013	- 20.000	MN3009	- 10.000	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	MN3001	0.000	MN3005	10.000	BREF	3.4530	FEET
		CANARD	0.000	RUDDER	0.000	NN3017	20.000			XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
		DATA HIST. CODE	I#A							ZMRP	0.0187	FEET
										SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



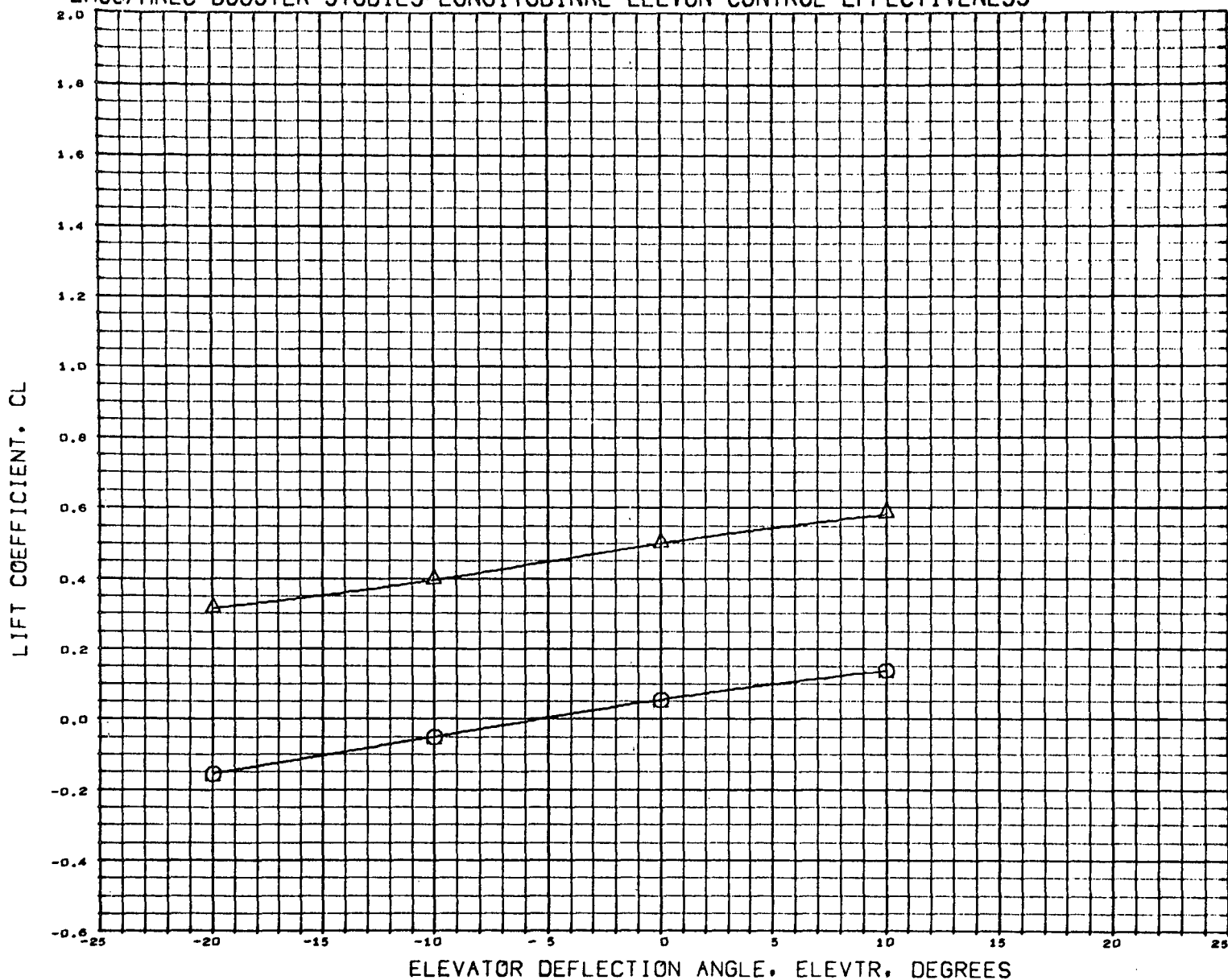
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		MSFLOW	0.000	AILRON	0.000	MN3001	0.000	MN3005	10.000	BREF	3.4530	FEET	
		CANARD	0.000	RUDDER	0.000	NN3017	20.000			XMRP	2.5950	FEET	
		WNGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET	
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NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1

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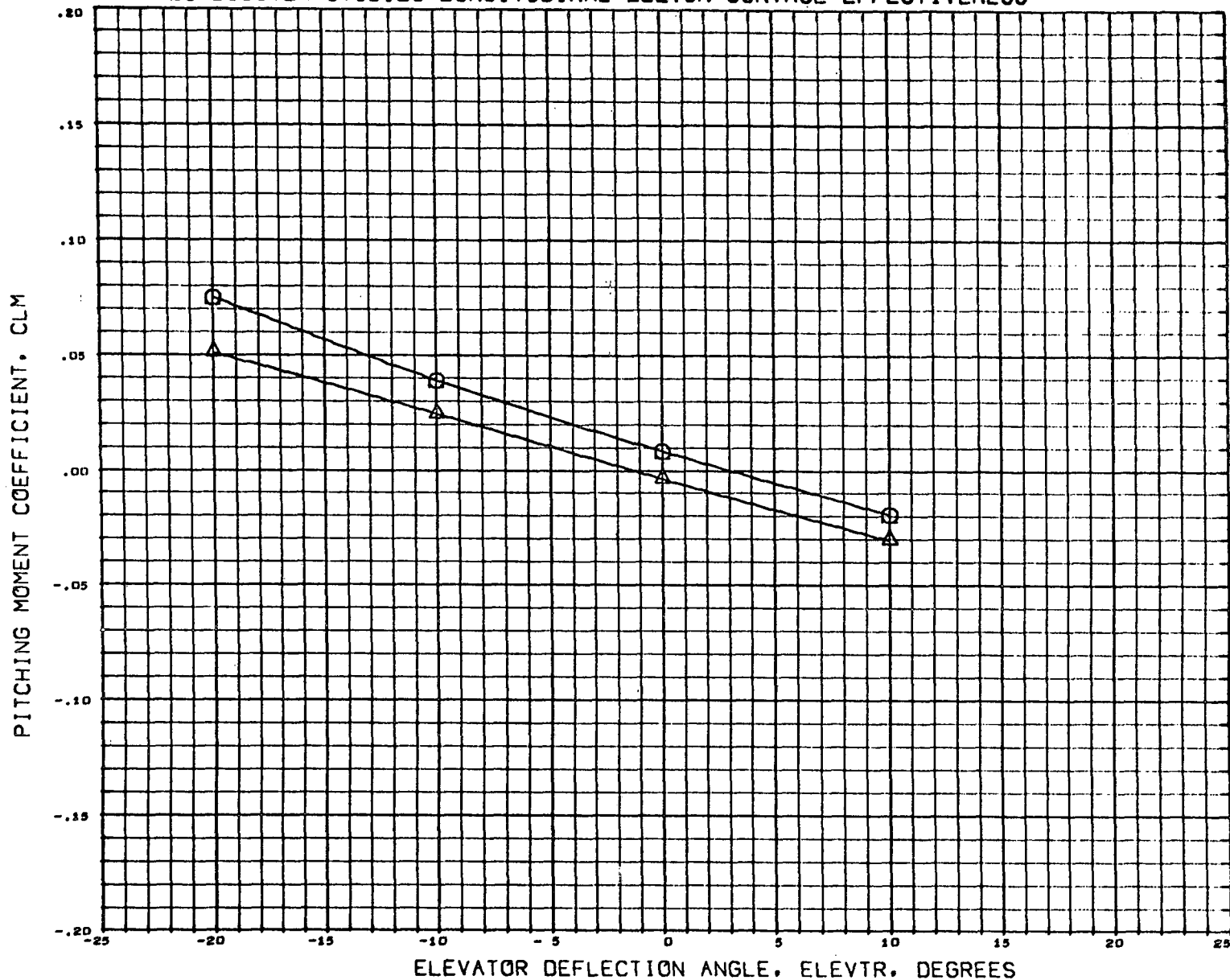
3

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



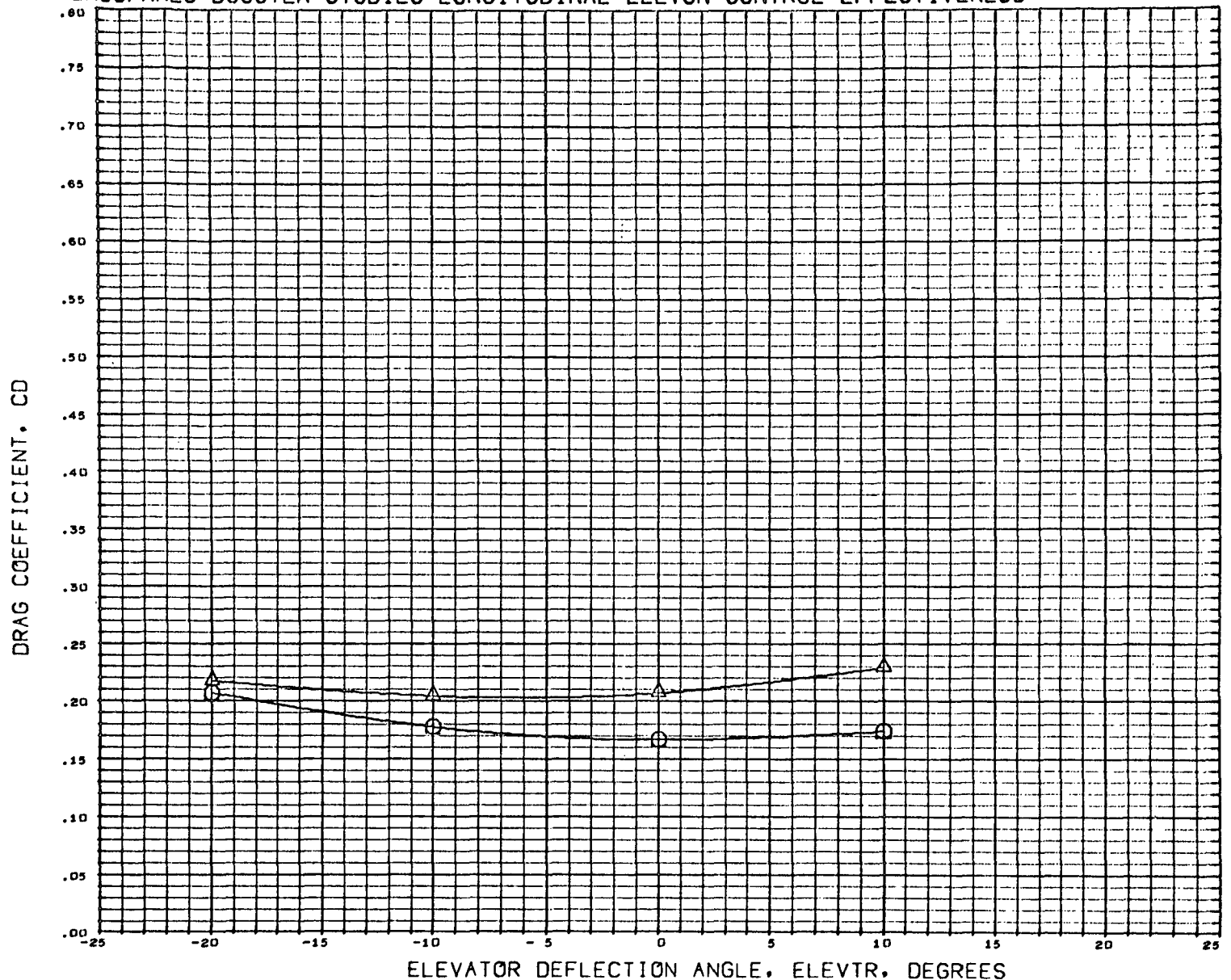
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	6.000	INCIDC	3.000	INCIDW	0.000	LN3013	- 20.000	LN3009	- 10.000	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	LN3001	0.000	LN3005	10.000	BREF	3.4530	FEET
		CANARD	0.000	RUDDER	0.000					XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
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										SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



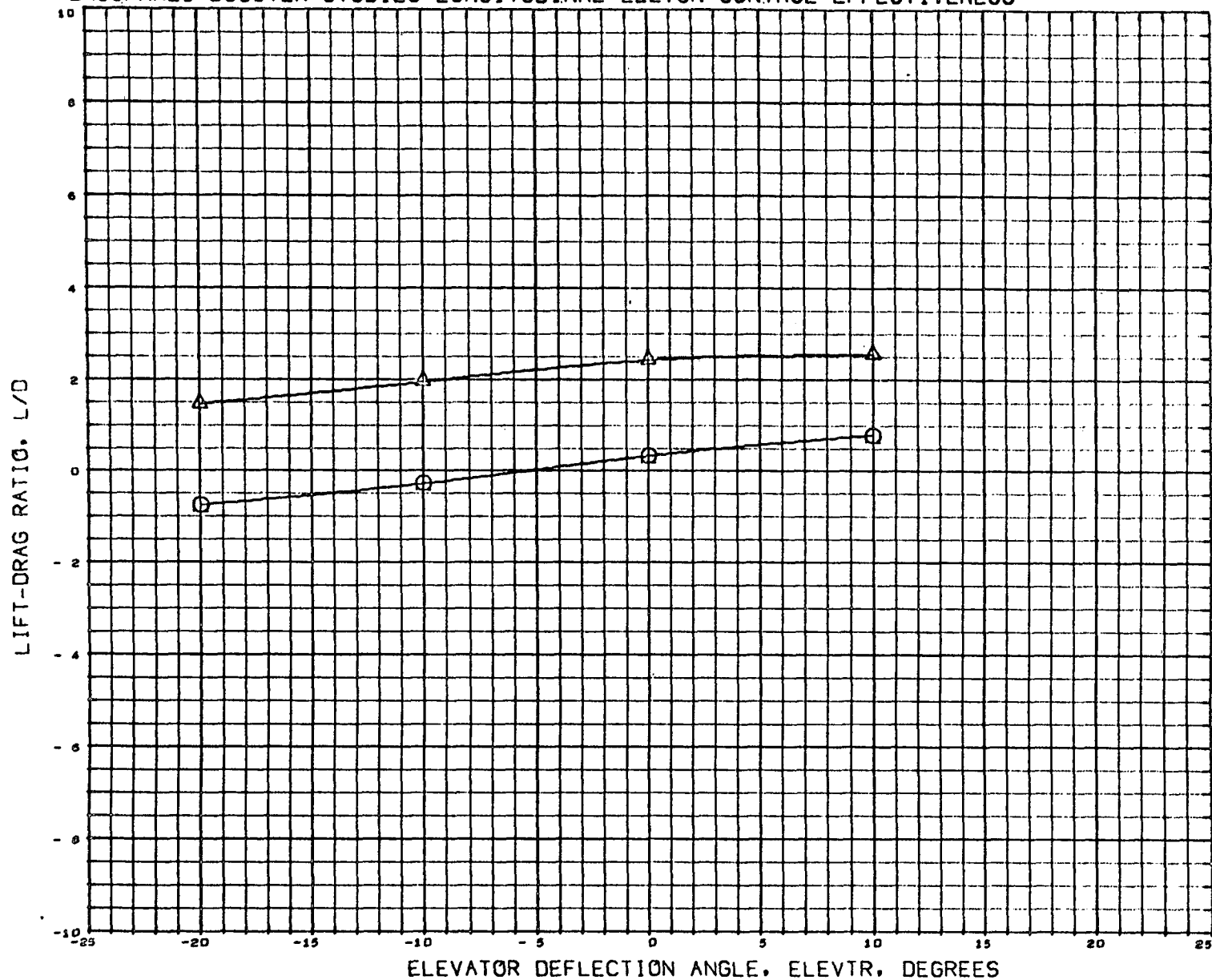
SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE				REFERENCE INFORMATION		
○	0.000	<u>MACH</u>	1.125	BETA	- 0.012	DATASET	ELEVTR	DATASET	ELEVTR	SREF	1.3550	SQ.FT.
△	6.000	INCIDC	3.000	INCIDW	0.000	LN3013	- 20.000	LN3009	- 10.000	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	LN3001	0.000	LN3005	10.000	BREF	3.4530	FEET
		CANARD	0.000	RUDDER	0.000					XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
		DATA HIST. CODE	17A							ZMRP	0.0187	FEET
										SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE				REFERENCE INFORMATION		
O	0.000	MACH	1.125	BETA	- 0.012	DATASET	ELEVTR	DATASET	ELEVTR	SREF	1.3550	SQ.FT.
Δ	6.000	INCIDC	3.000	INCIDW	0.000	LN3013	- 20.000	LN3009	- 10.000	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	LN3001	0.000	LN3005	10.000	BREF	3.4530	FEET
		CANARD	0.000	RUDDER	0.000					XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
		DATA HIST. CODE	IWA							ZMRP	0.0187	FEET
										SCALE	0.0150	SCALE

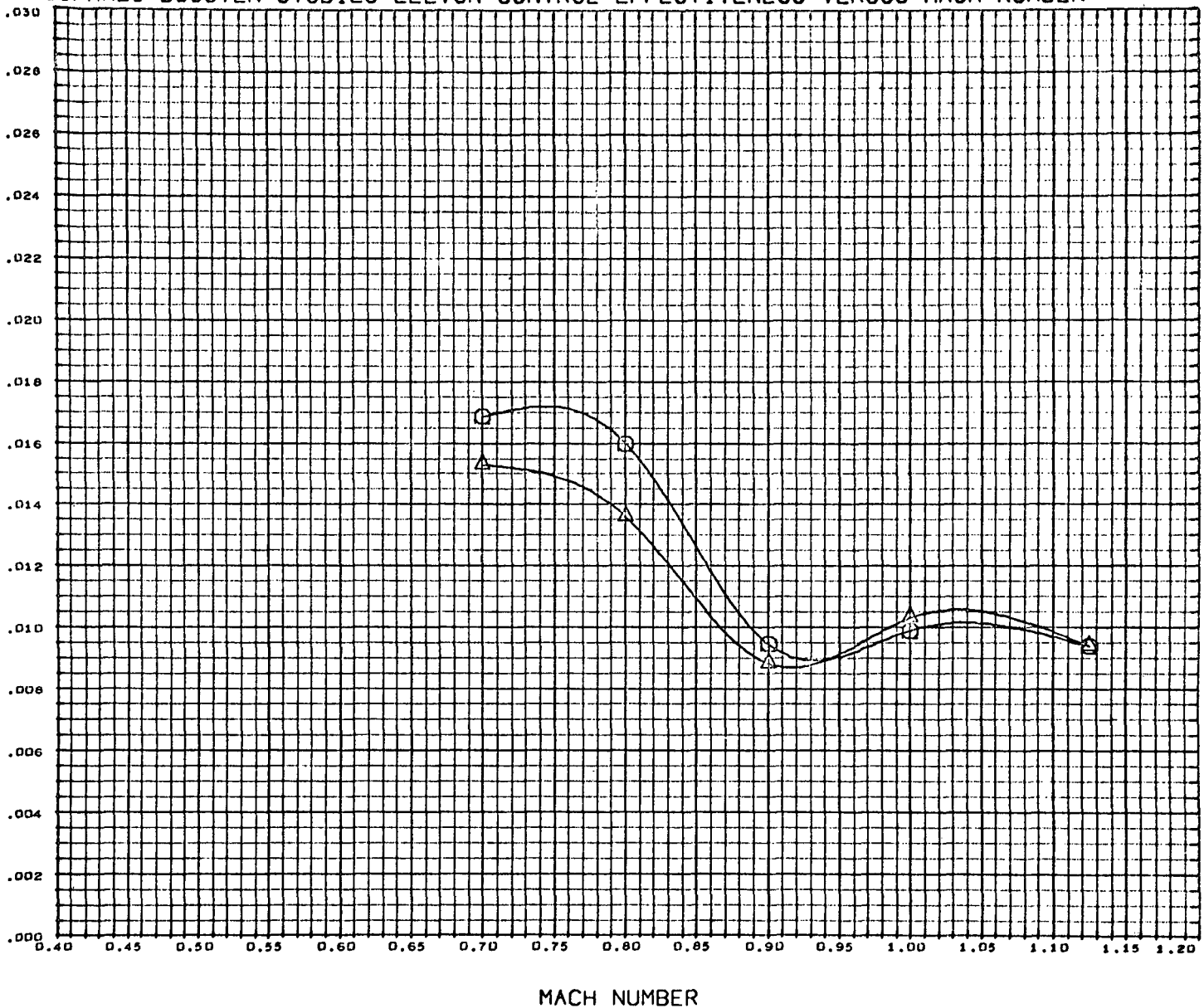
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE				REFERENCE INFORMATION		
O	0.000	MACH	1.125	BETA	- 0.012	DATASET	ELEVTR	DATASET	ELEVTR	SREF	1.3550	SQ.FT.
Δ	6.000	INCIDC	3.000	INCIDW	0.000	LN3013	- 20.000	LN3009	- 10.000	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	LN3001	0.000	LN3005	10.000	BREF	3.4530	FEET
		CANARD	0.000	RUDDER	0.000					XMRP	2.5950	FEET
		WINGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
		DATA HIST. CODE	I#A							ZMRP	0.0187	FEET
										SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-ELEVON CONTROL EFFECTIVENESS VERSUS MACH NUMBER

LIFT DUE TO ELEVON, DCL/DE, PER DEGREE

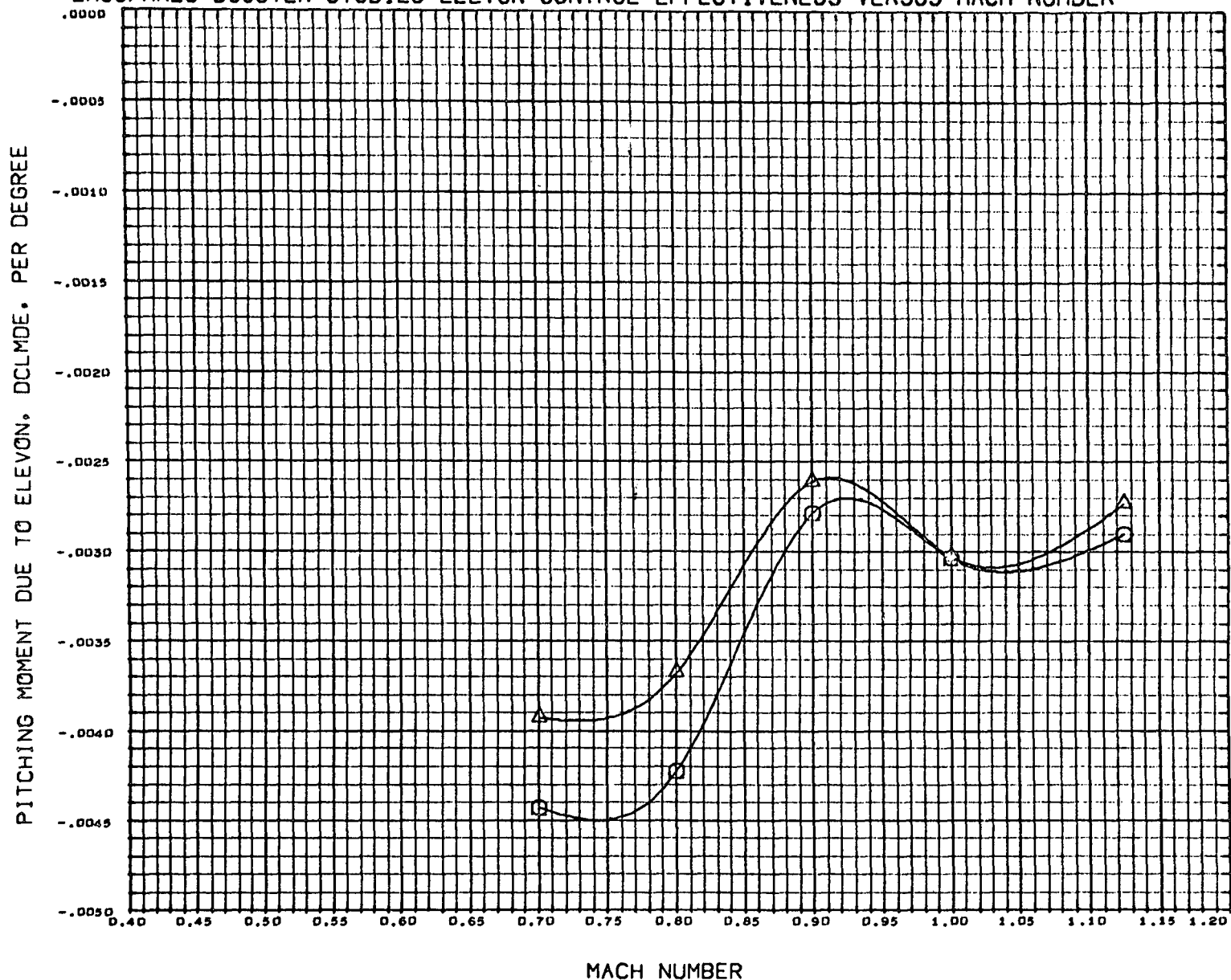


MACH NUMBER

SYMBOL	ALPHA	PARAMETRIC VALUES			
O Δ	0.000	INCIDC	3.000	INCIDW	0.000
	6.000	MSFLOW	0.000	AILRON	0.000
		CANARD	0.000	ELEVTR	0.000
		RUDDER	0.000	WNGPOS	1.000
		CNDPOS	1.000		
		DATA HIST. CODE	I*F		

REFERENCE INFORMATION		
SREF	1.3550	80. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.9950	FEET
YMRP	0.0000	FEET
ZMRP	0.0187	FEET
SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-ELEVON CONTROL EFFECTIVENESS VERSUS MACH NUMBER



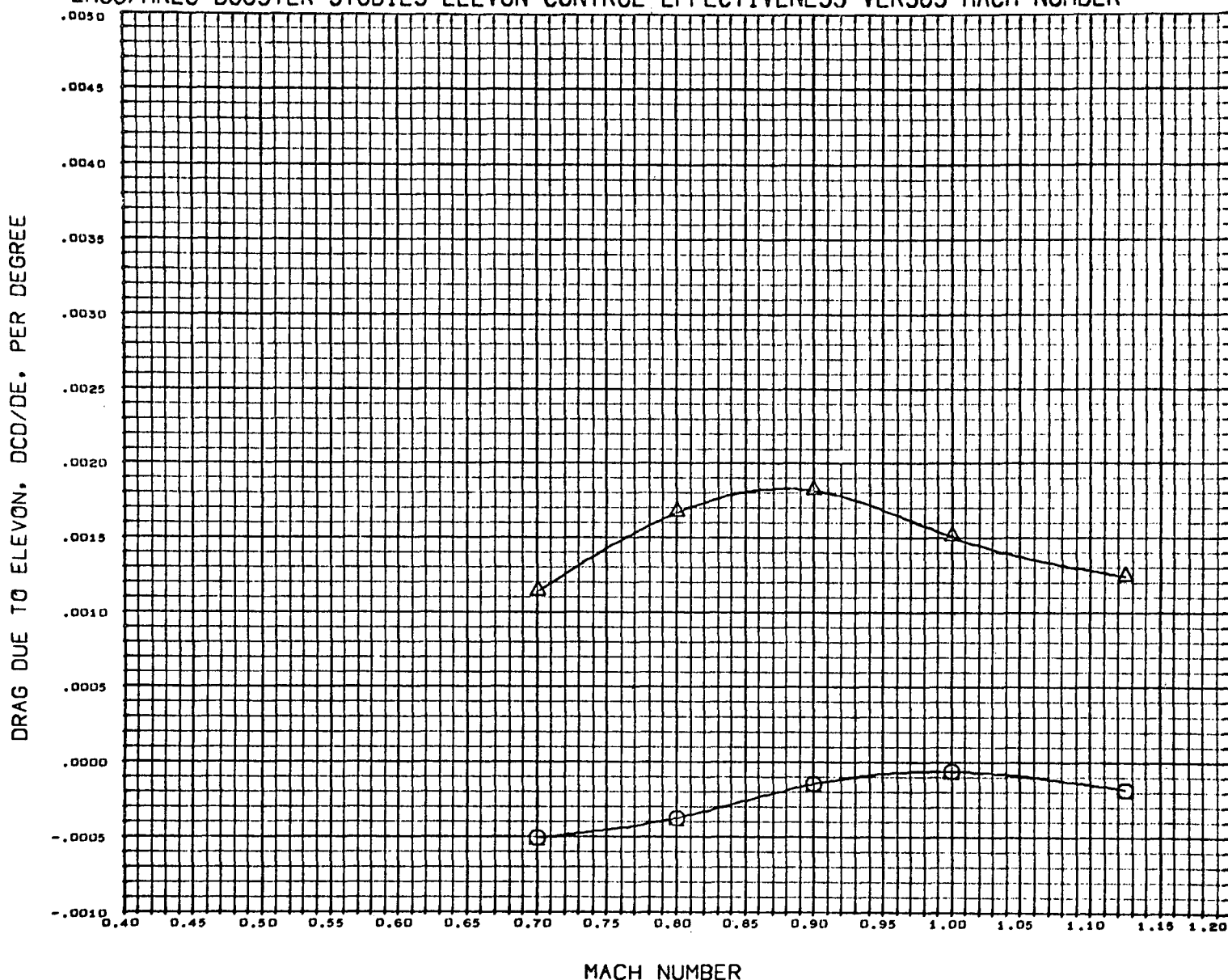
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PARAMETRIC VALUES			
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MSFLOW	0.000	AILRON	0.000
CANARD	0.000	ELEVTR	0.000
RUDDER	0.000	WNGPOS	1.000
CNDPOS	1.000		
DATA HIST. CODE		1*P	

REFERENCE INFORMATION

SREF	1.3550	SQ. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0187	FEET
SCALE	0.0150	SCALE

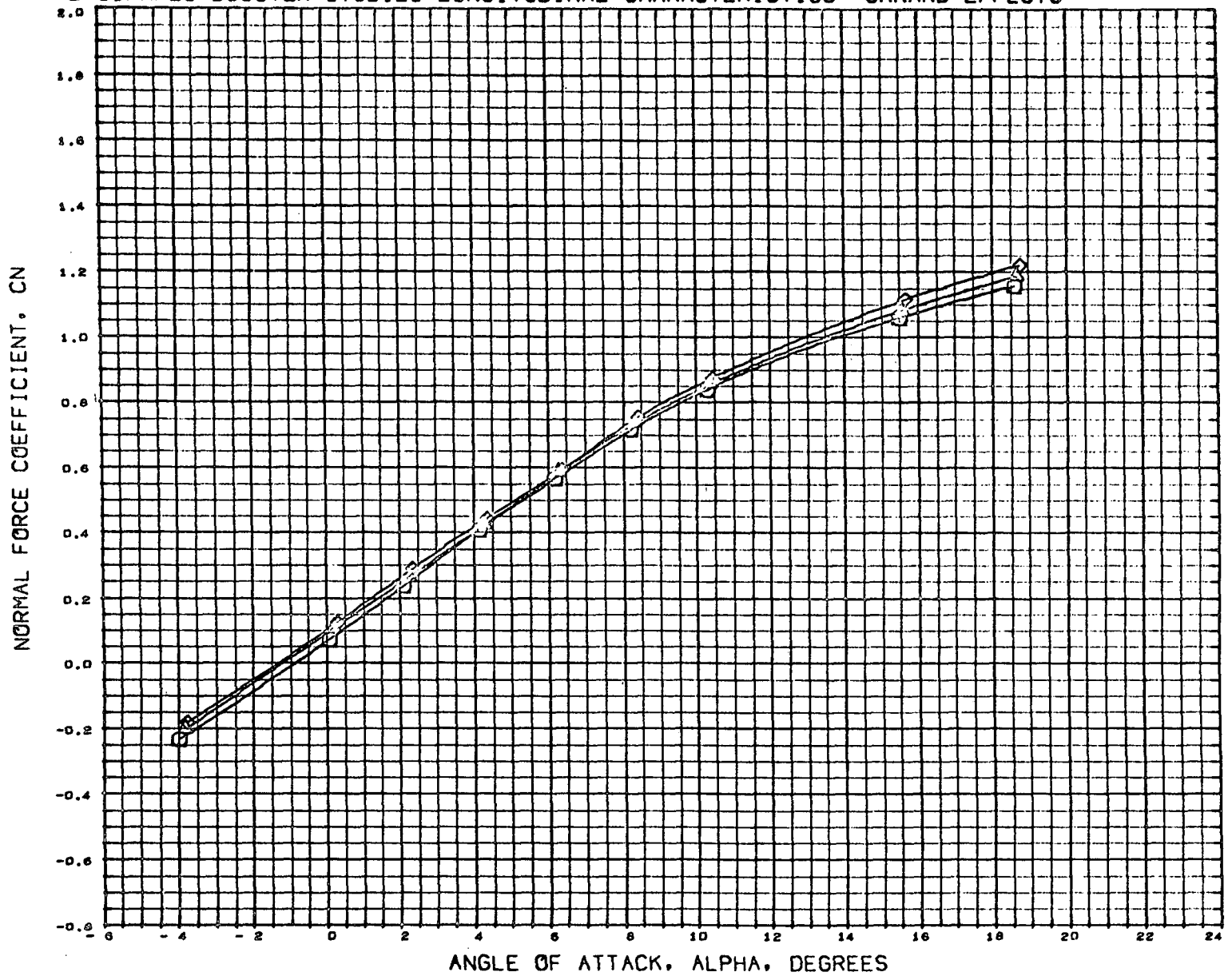
LMSC/HREC BOOSTER STUDIES-ELEVON CONTROL EFFECTIVENESS VERSUS MACH NUMBER



SYMBOL	ALPHA	PARAMETRIC VALUES			
△	0.000	INCIDC	3.000	INCIDW	0.000
○	6.000	MSFLOW	0.000	AILRON	0.000
		CANARD	0.000	ELEVTR	0.000
		RUDDER	0.000	WNGPOS	1.000
		CNDPOS	1.000		
		DATA HIST. CODE	I#P		

REFERENCE INFORMATION		
SREF	1.3550	SQ.FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRF	2.5950	FEET
YMRF	0.0000	FEET
ZMRF	0.0187	FEET
SCALE	0.0150	SCALE

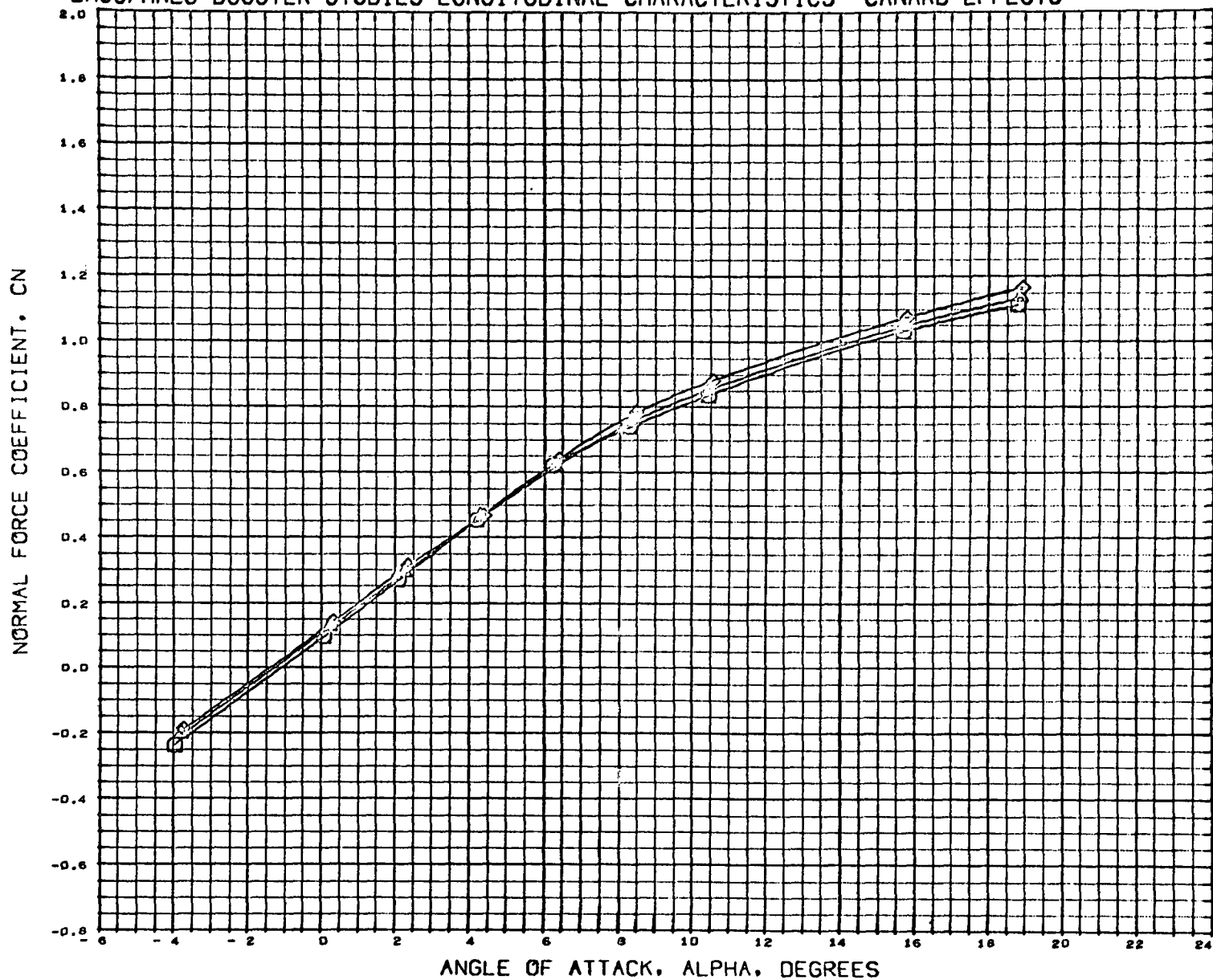
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.703

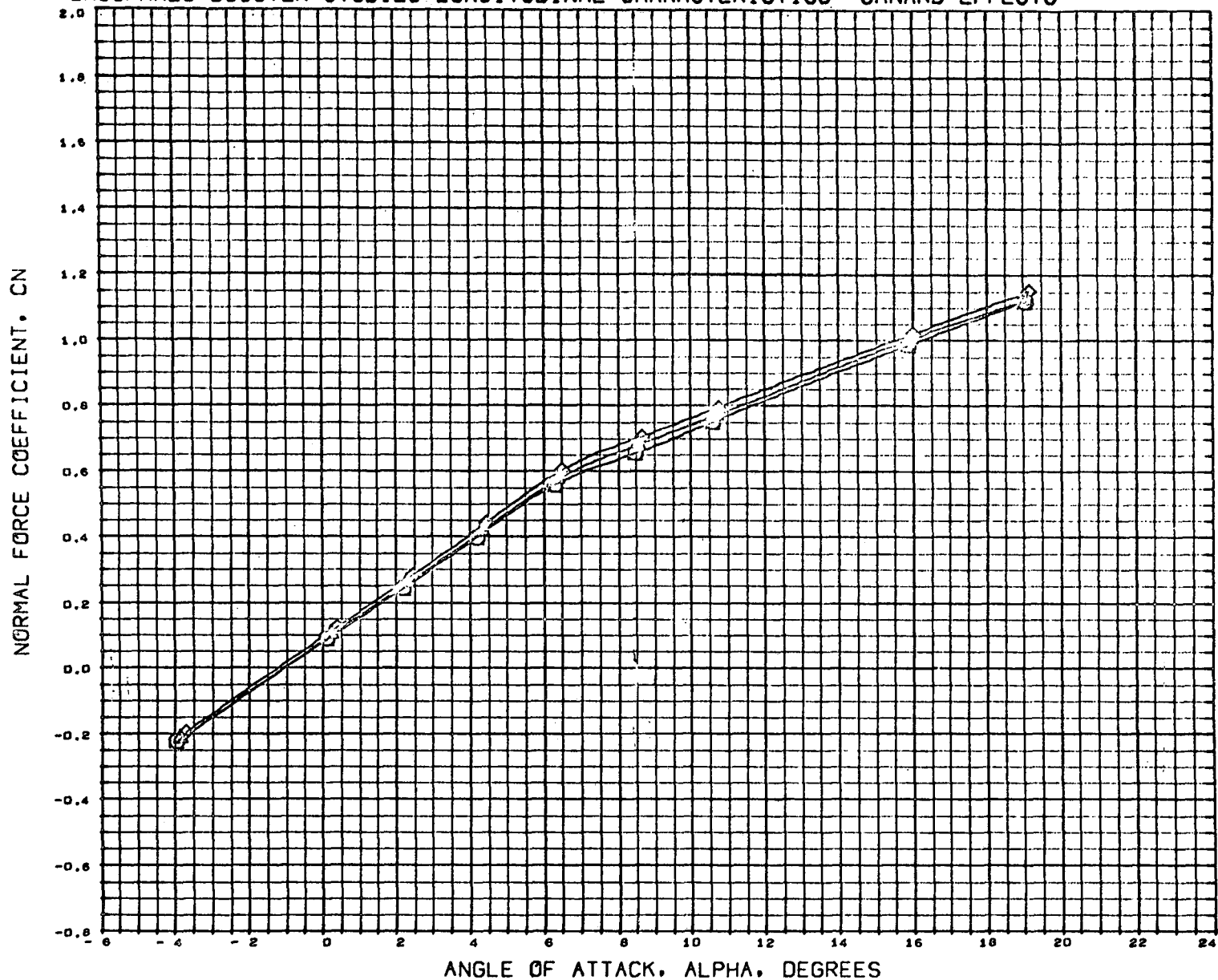
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.803

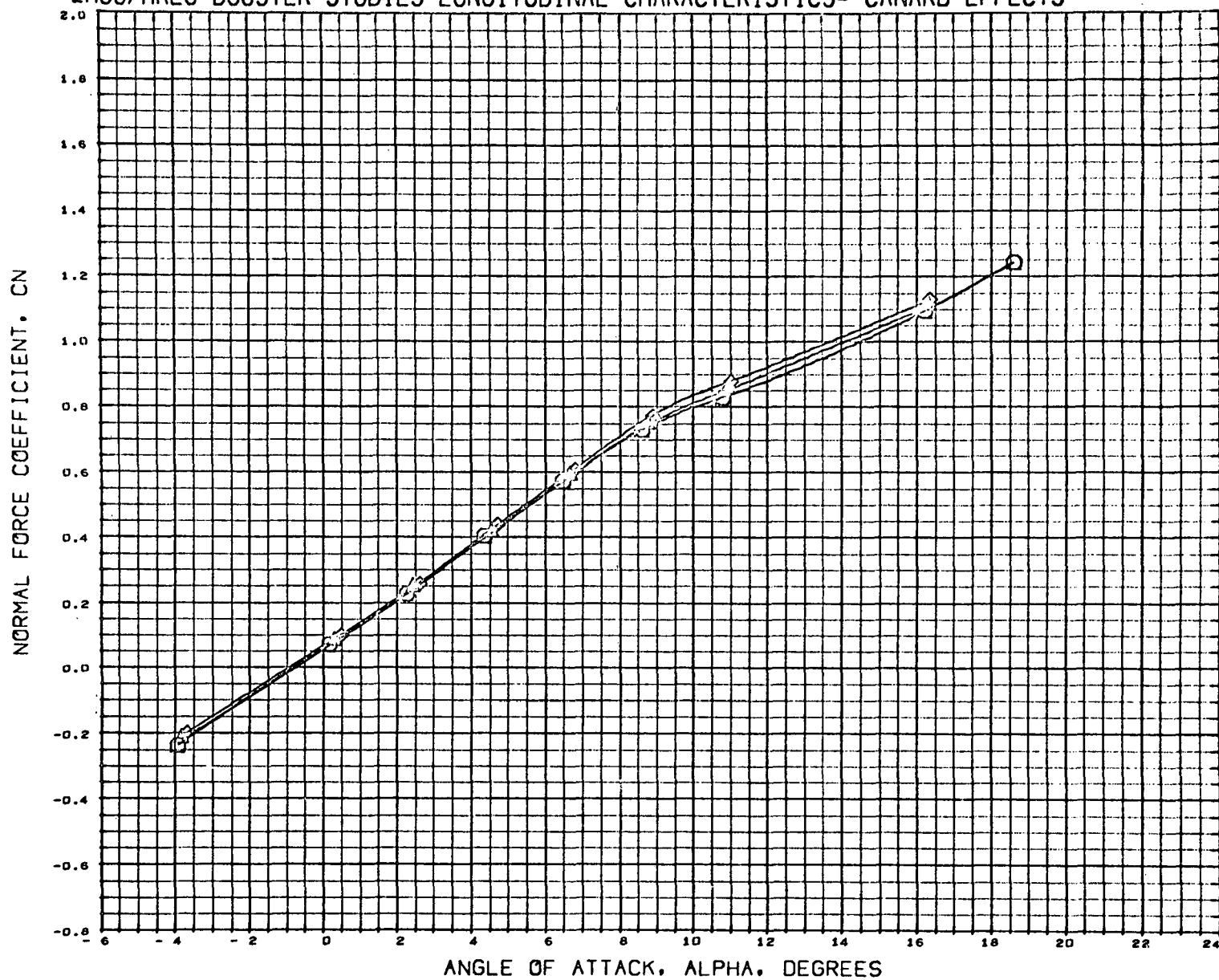
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.903

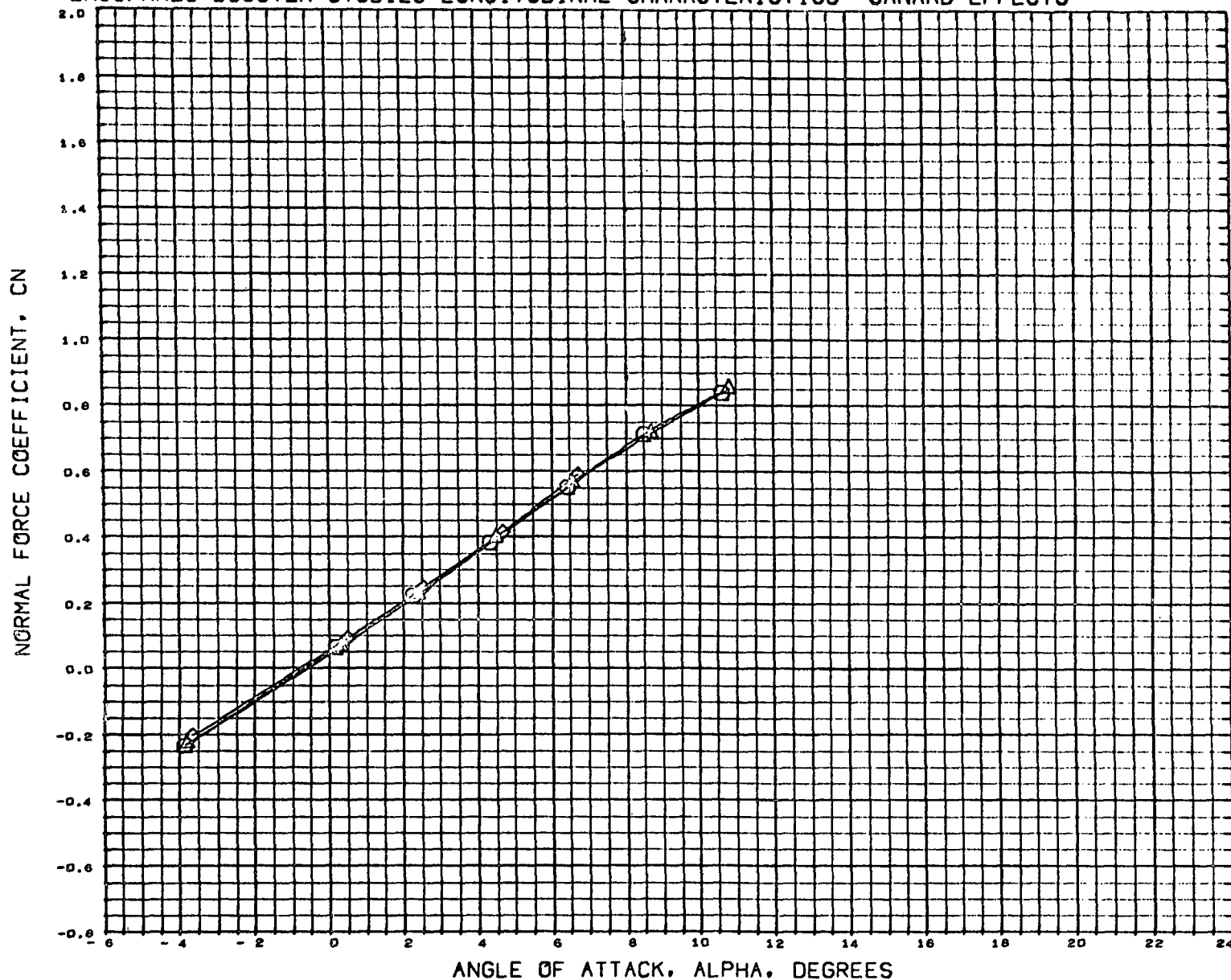
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3001)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3021)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3033)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF	3.4530 FEET
							XMRP	2.5950 FEET
							YMRP	0.0000 FEET
							ZMRP	0.0187 FEET
							SCALE	0.0150 SCALE

MACH 1.003

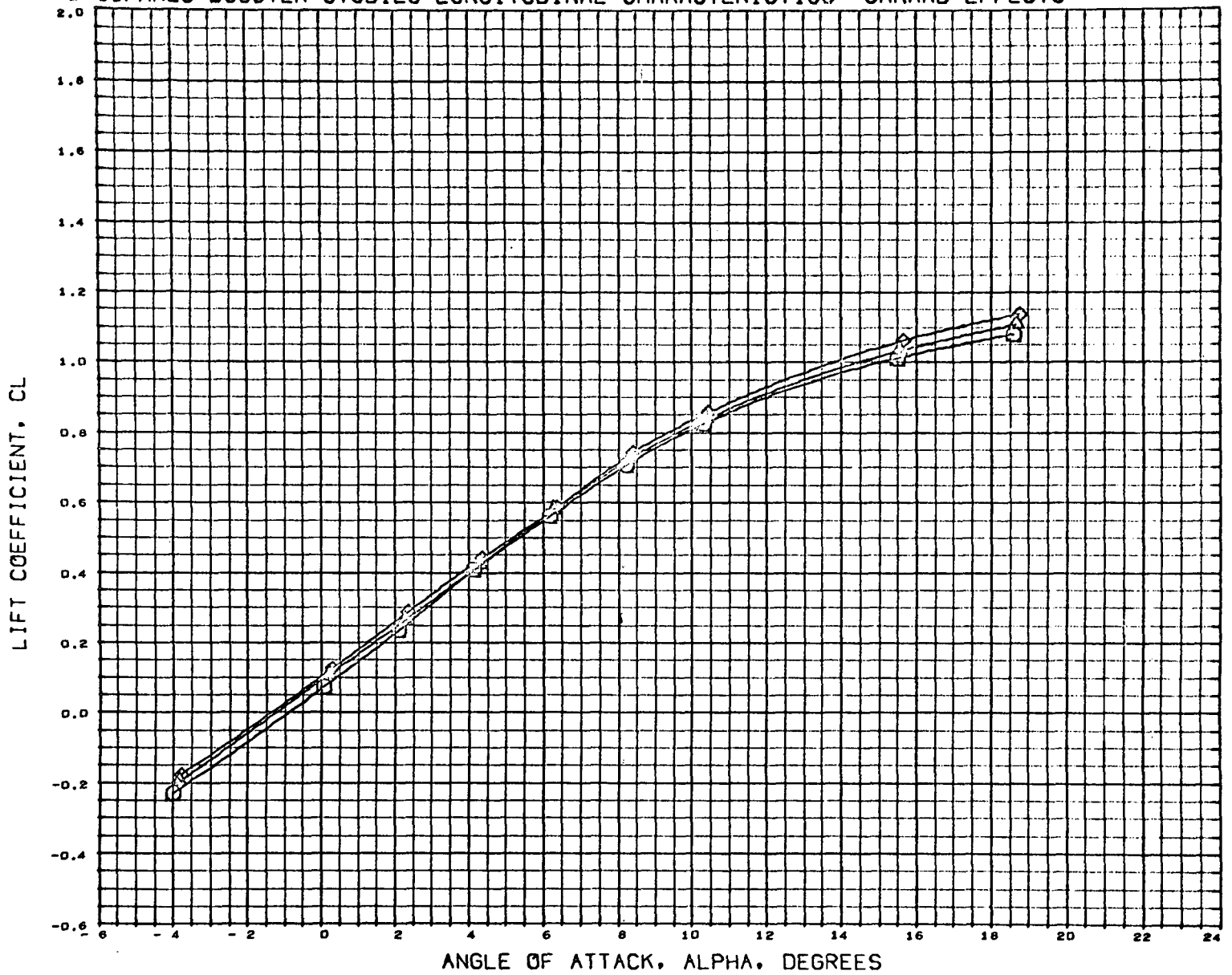
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF	3.4530 FEET
						XMRF	2.5950 FEET
						YMRF	0.0000 FEET
						ZMRF	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 1.122

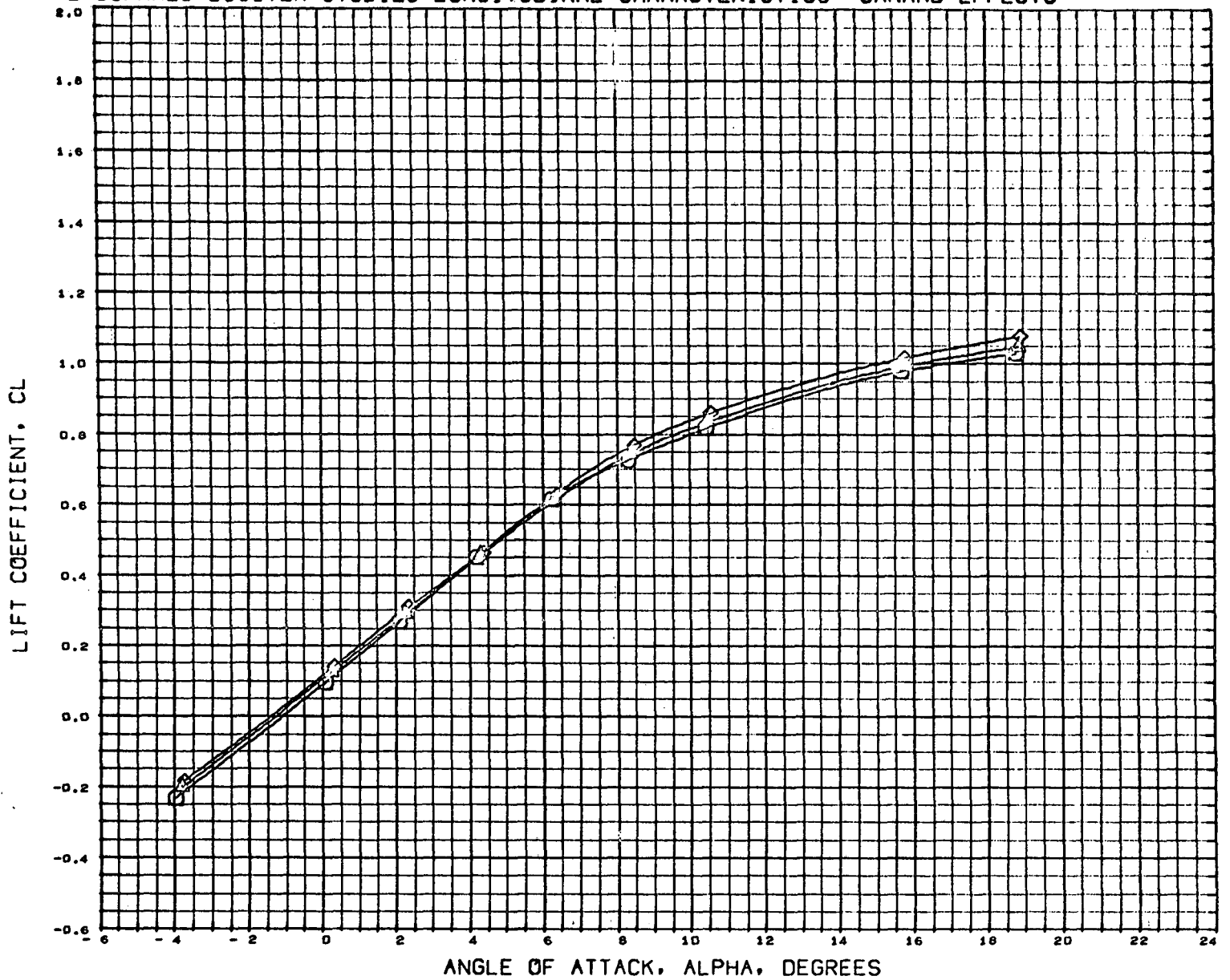
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3001)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3021)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3033)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.703

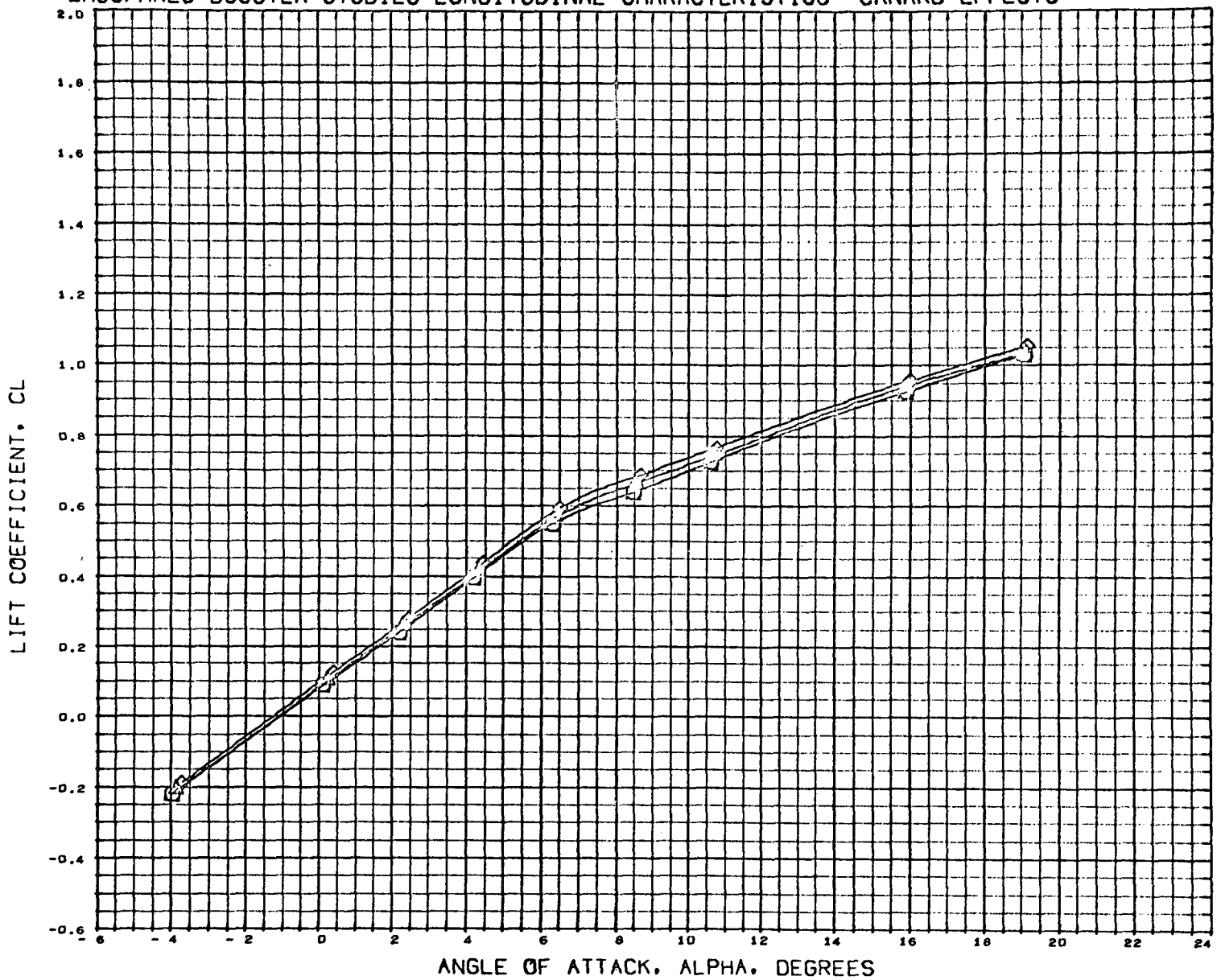
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.803

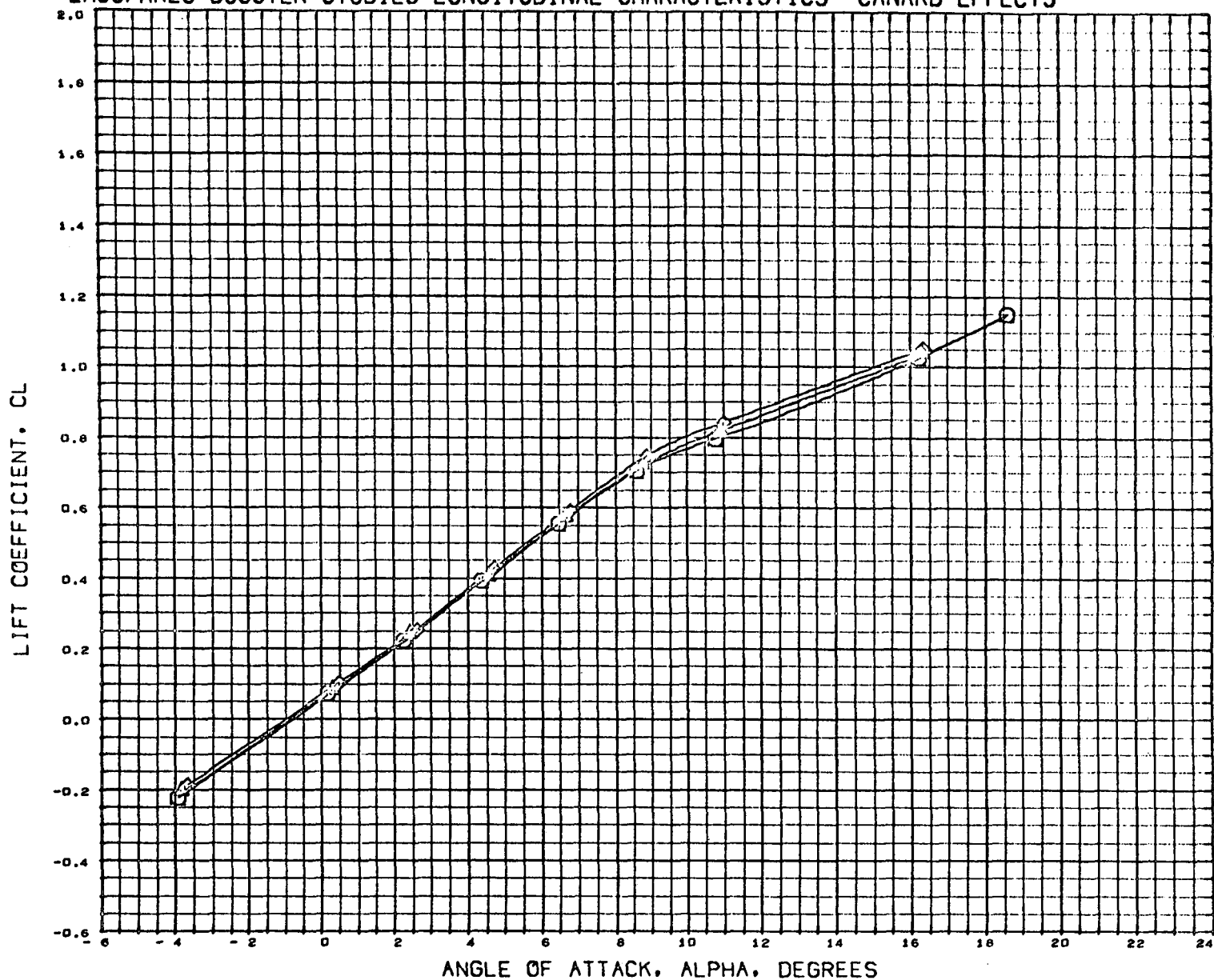
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF	3.4530 FEET
						XMRF	2.5950 FEET
						YMRF	0.0000 FEET
						ZMRF	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.903

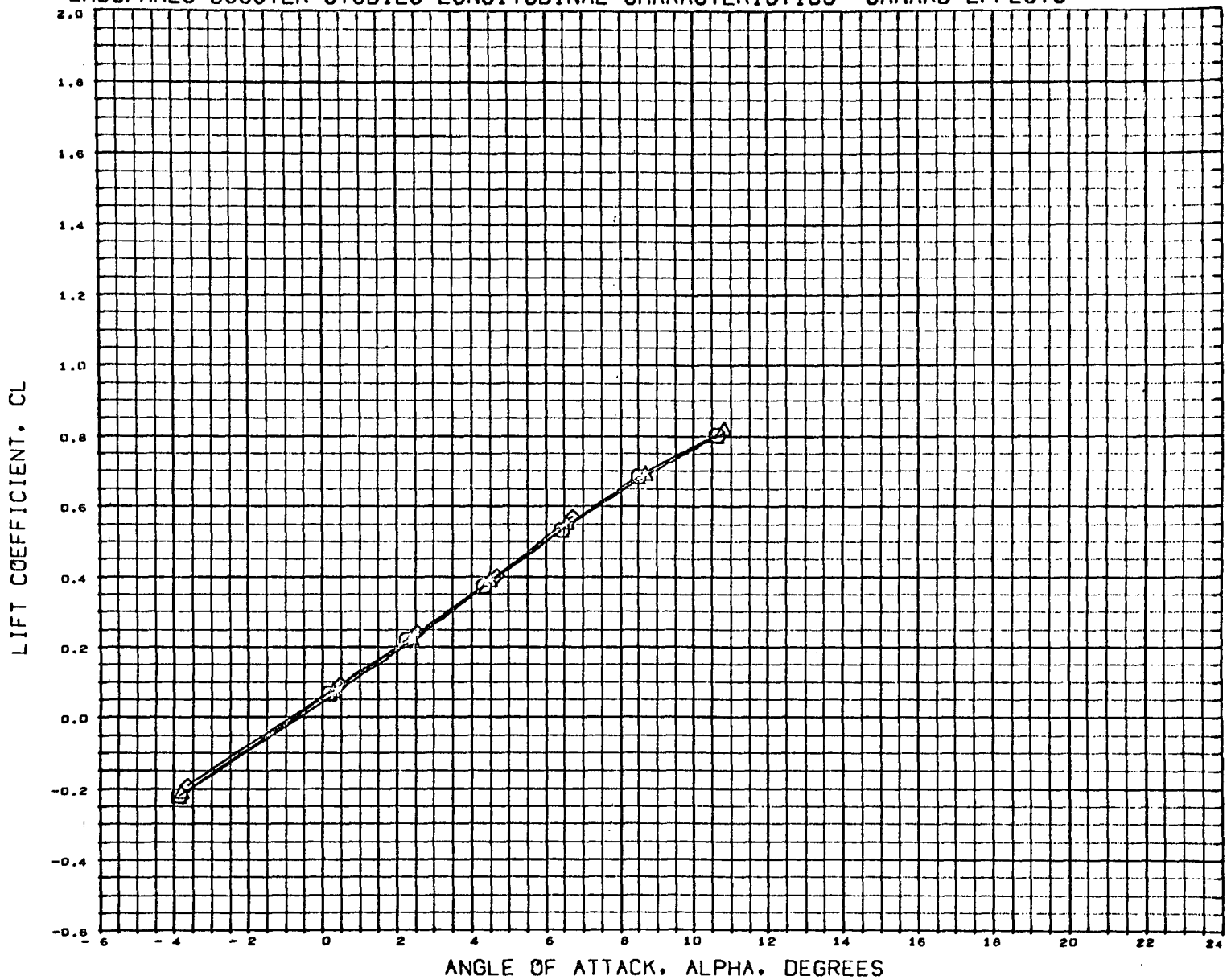
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF	3.4530 FEET
						XMRF	2.5950 FEET
						YMRF	0.0000 FEET
						ZMRF	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 1.003

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS

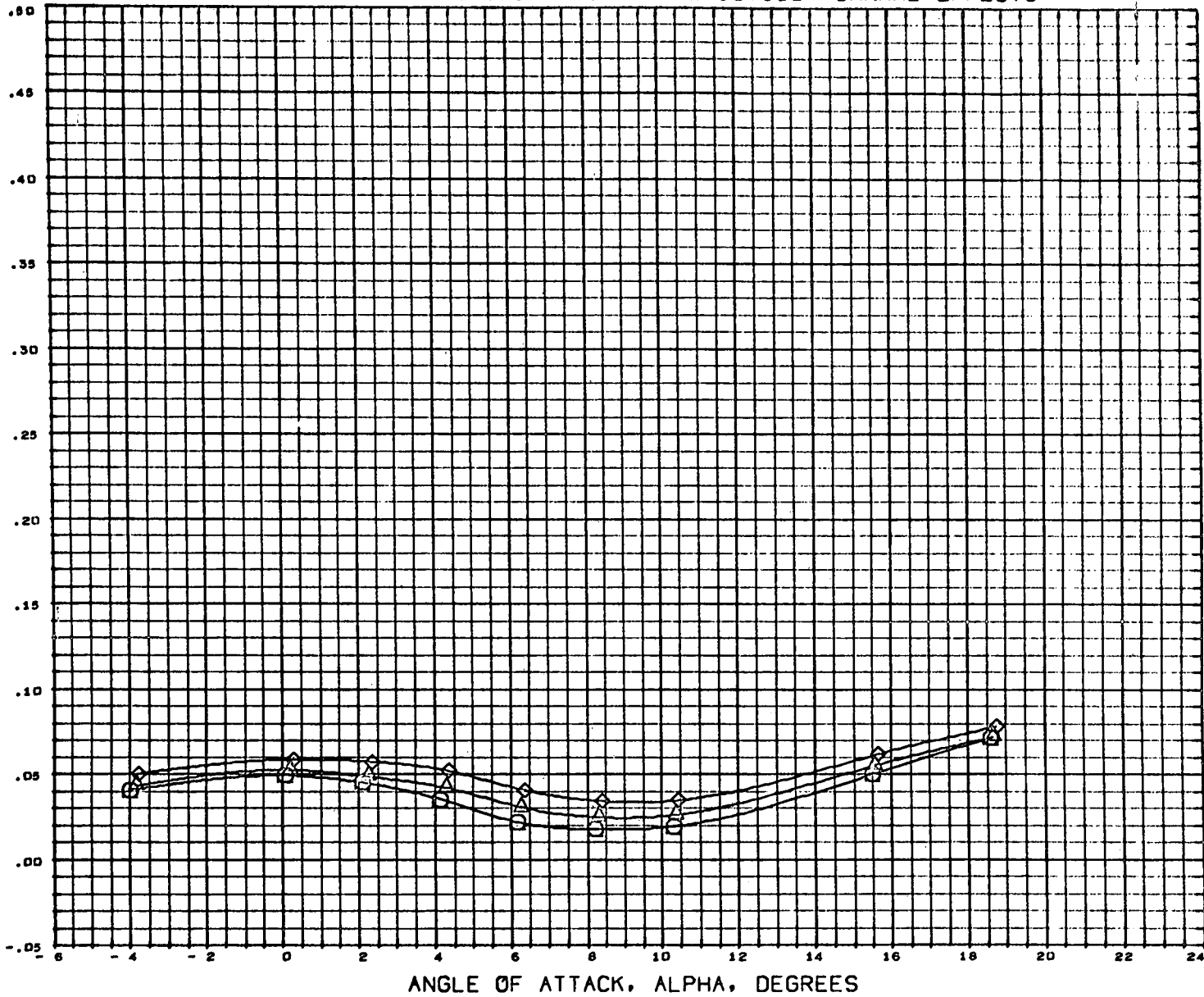


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	DREF	3.4530 FEET
						XMRF	2.5950 FEET
						YMRF	0.0000 FEET
						ZMRF	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 1.122

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS

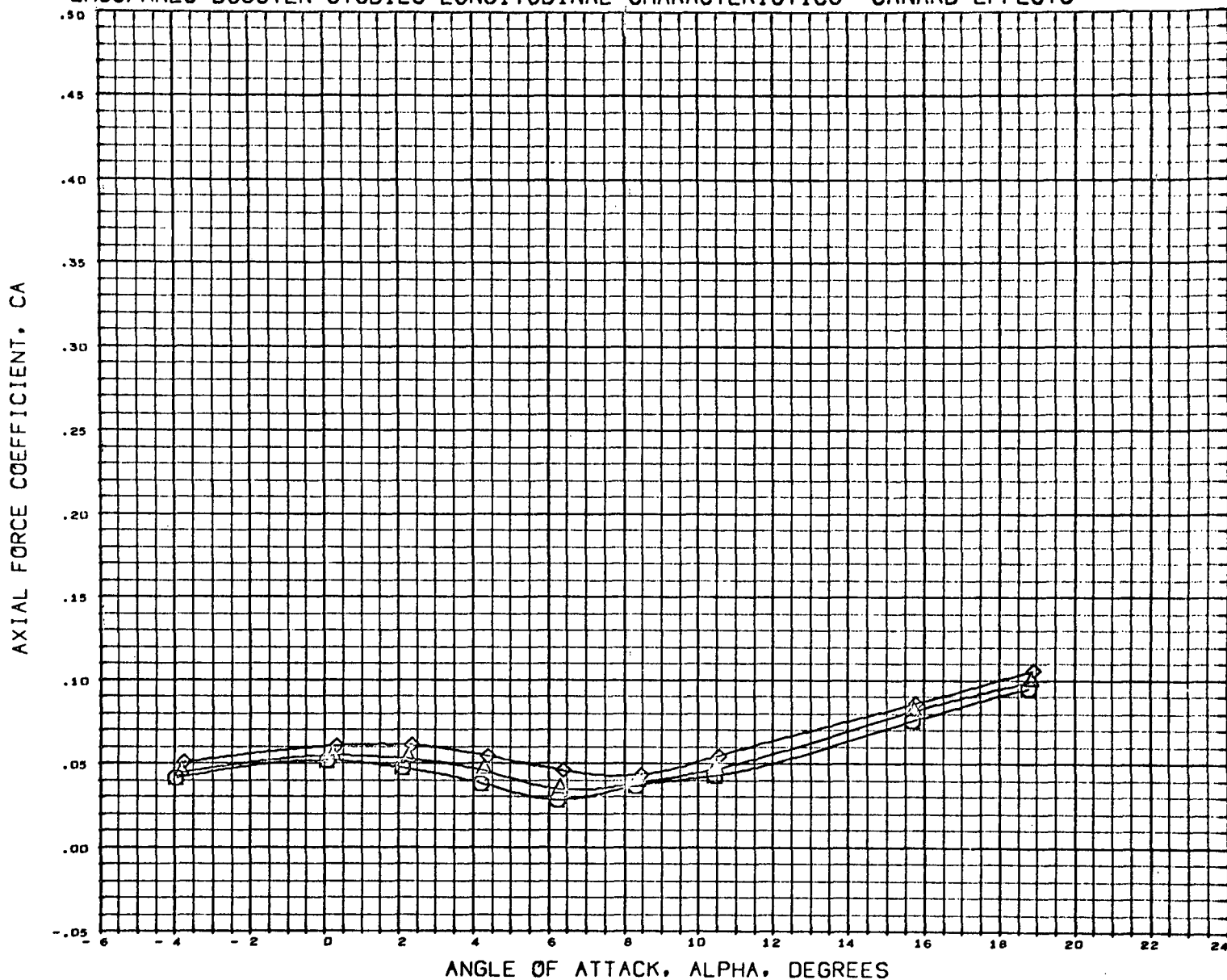
AXIAL FORCE COEFFICIENT, CA



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.703

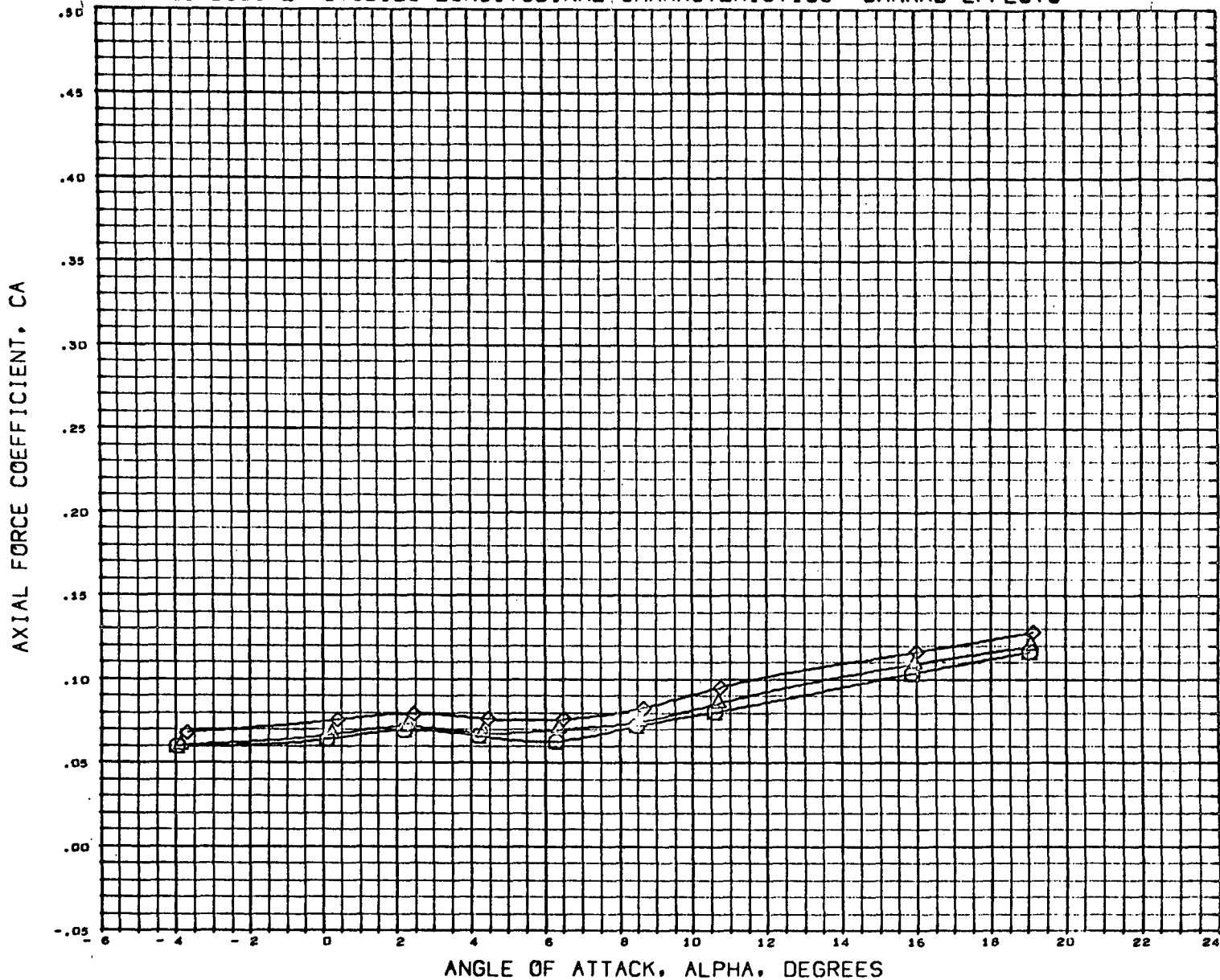
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 89.FT.
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.803

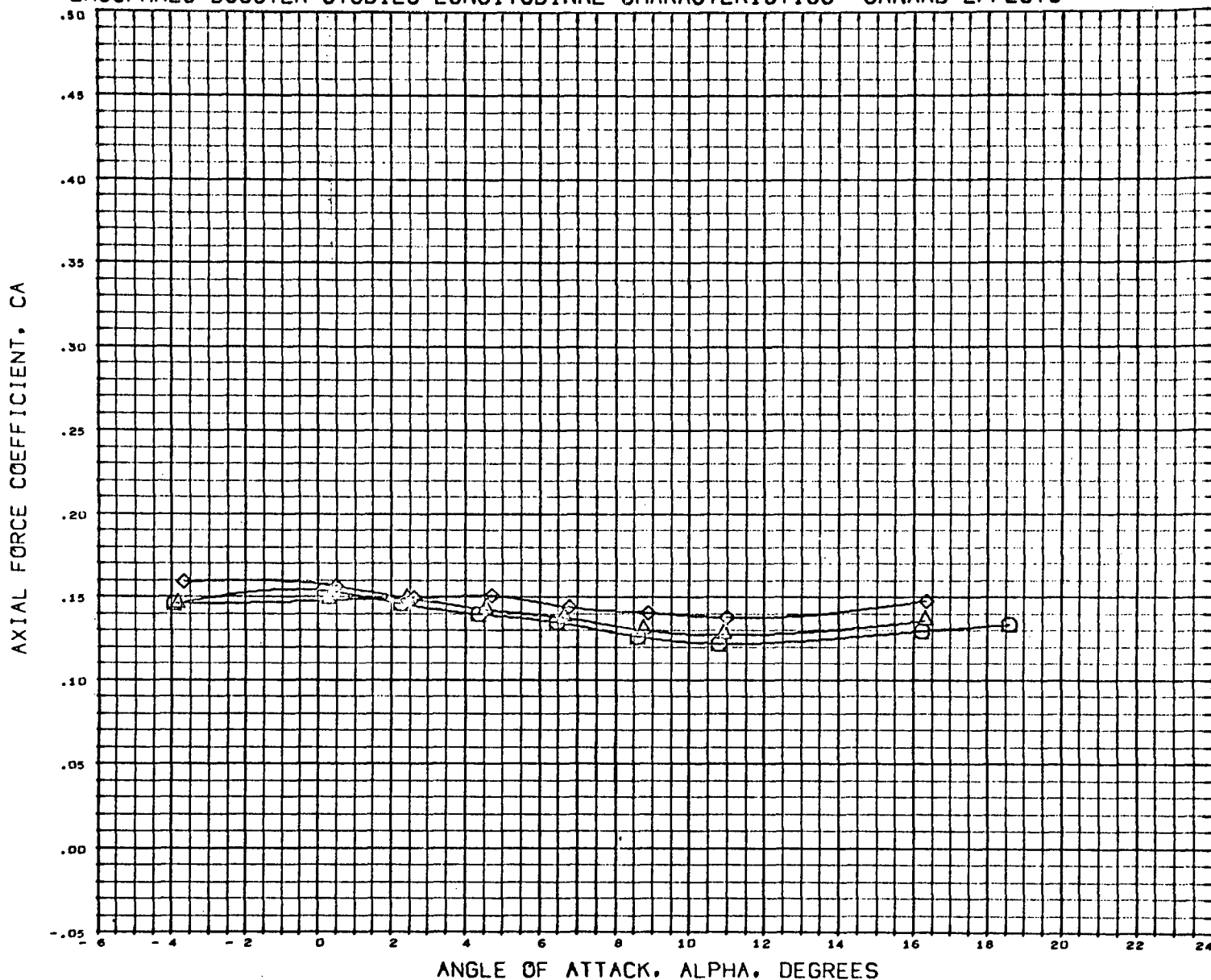
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3001)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 50.FT.
(RN3021)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3033)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF	3.4530 FEET
							XMRP	2.5950 FEET
							YMRP	0.0000 FEET
							ZMRP	0.0187 FEET
							SCALE	0.0150 SCALE

MACH 0.903

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS

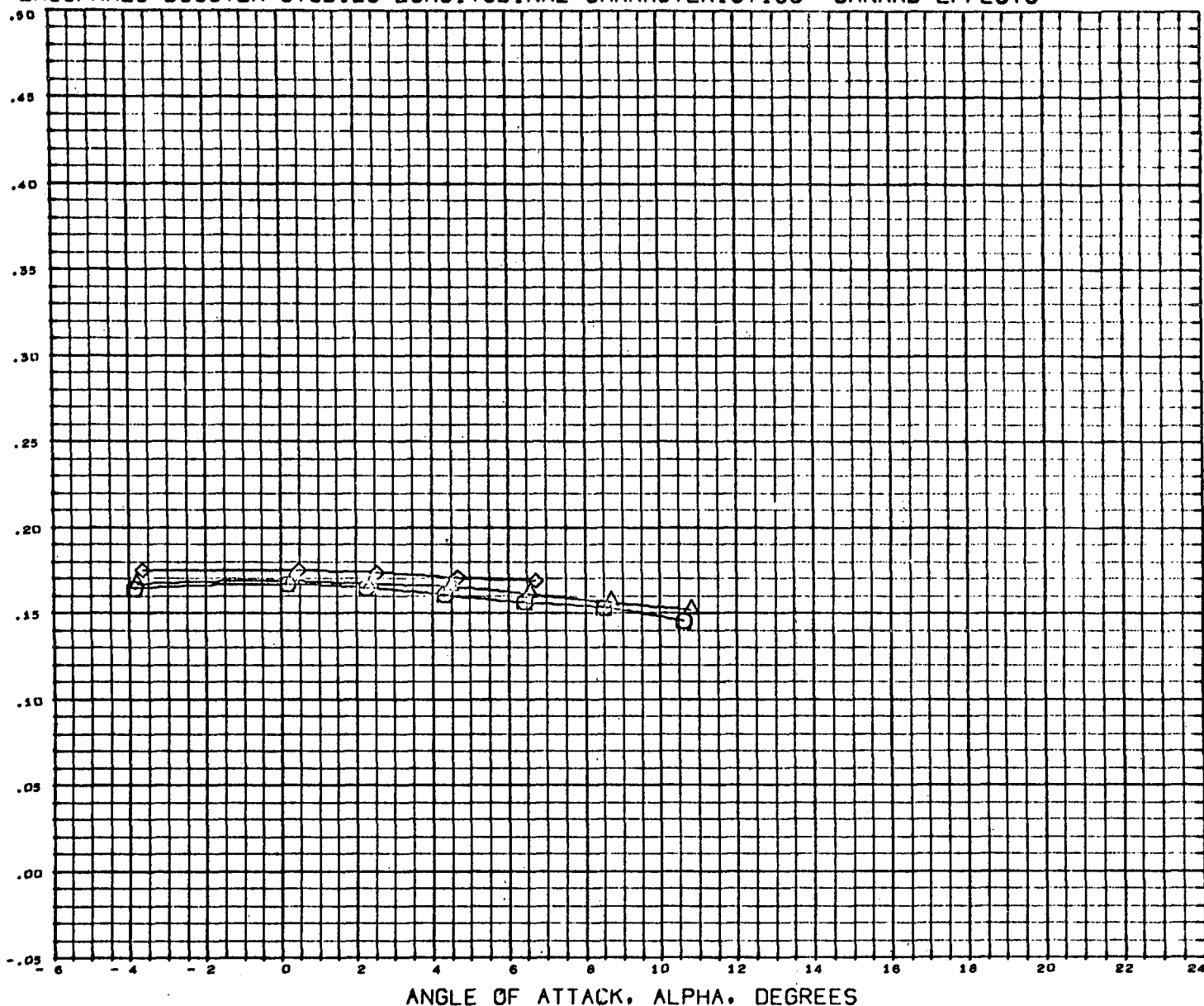


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3001)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3021)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LNCF	3.4530 FEET
(RN3033)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF	3.4530 FEET
							XMRF	2.5950 FEET
							YMRF	0.0000 FEET
							ZMRF	0.0187 FEET
							SCALE	0.0150 SCALE

MACH 1.003

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS

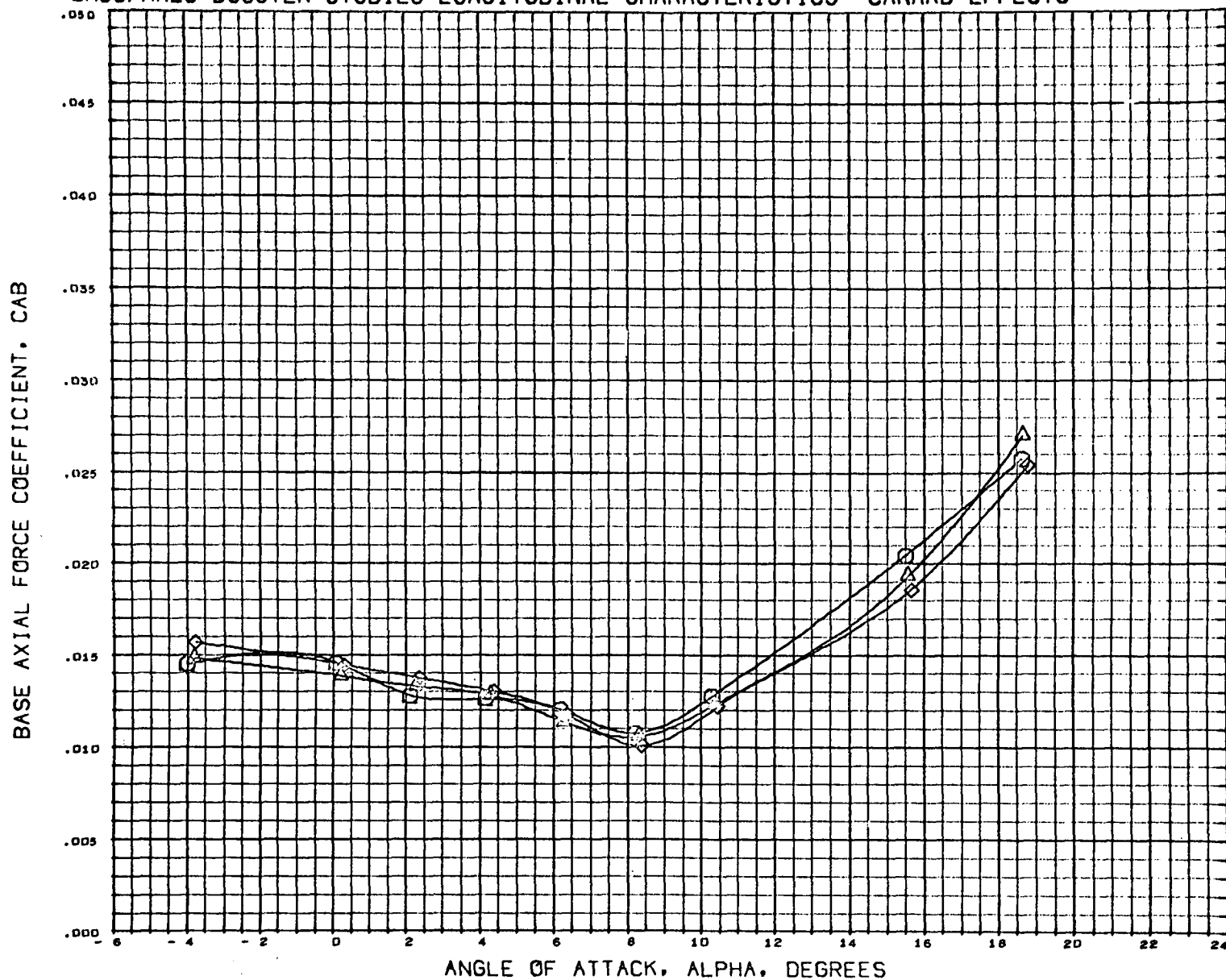
AXIAL FORCE COEFFICIENT, CA



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 1.122

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS

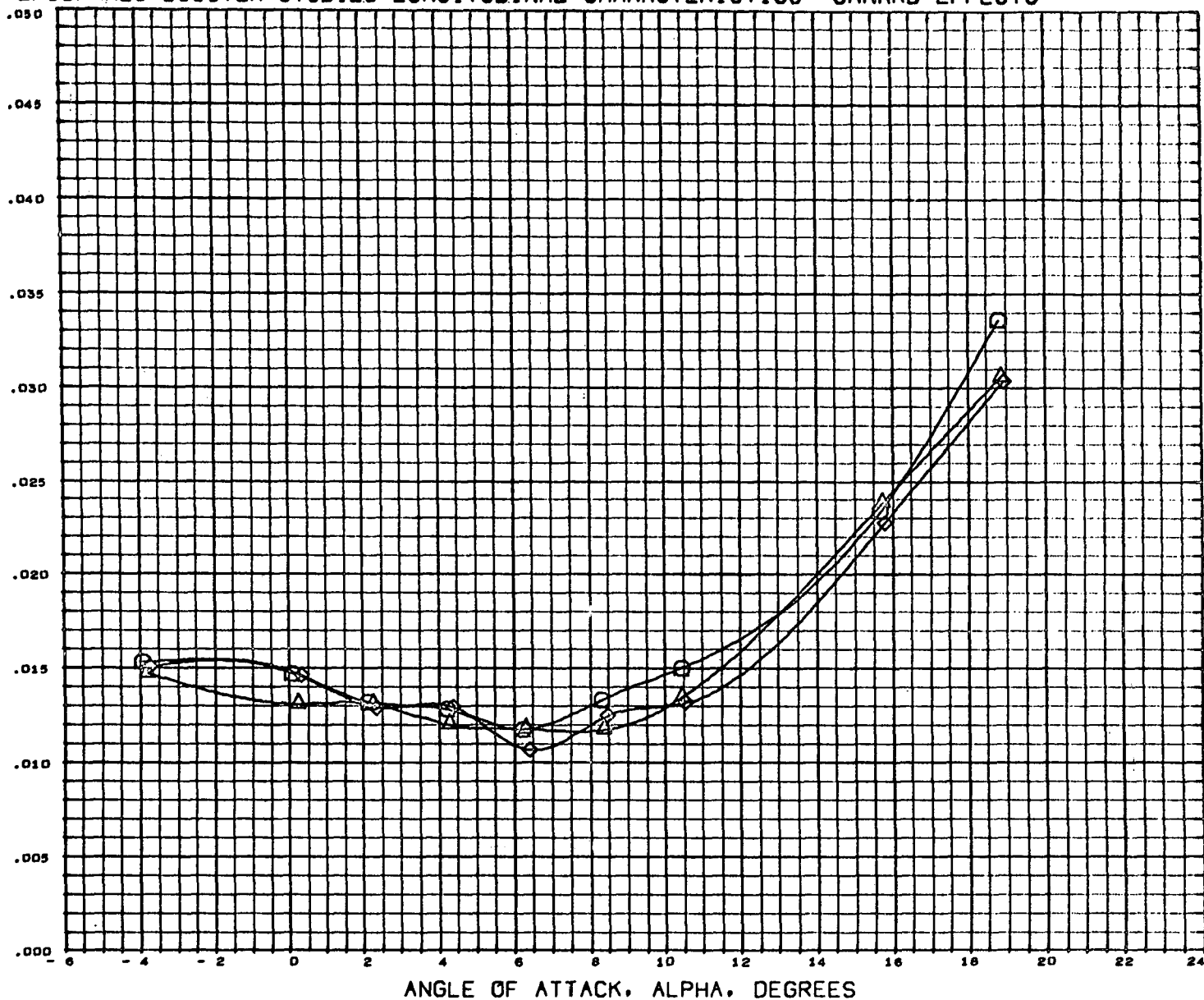


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0107 FEET
						SCALE	0.0150 SCALE

MACH 0.703

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS

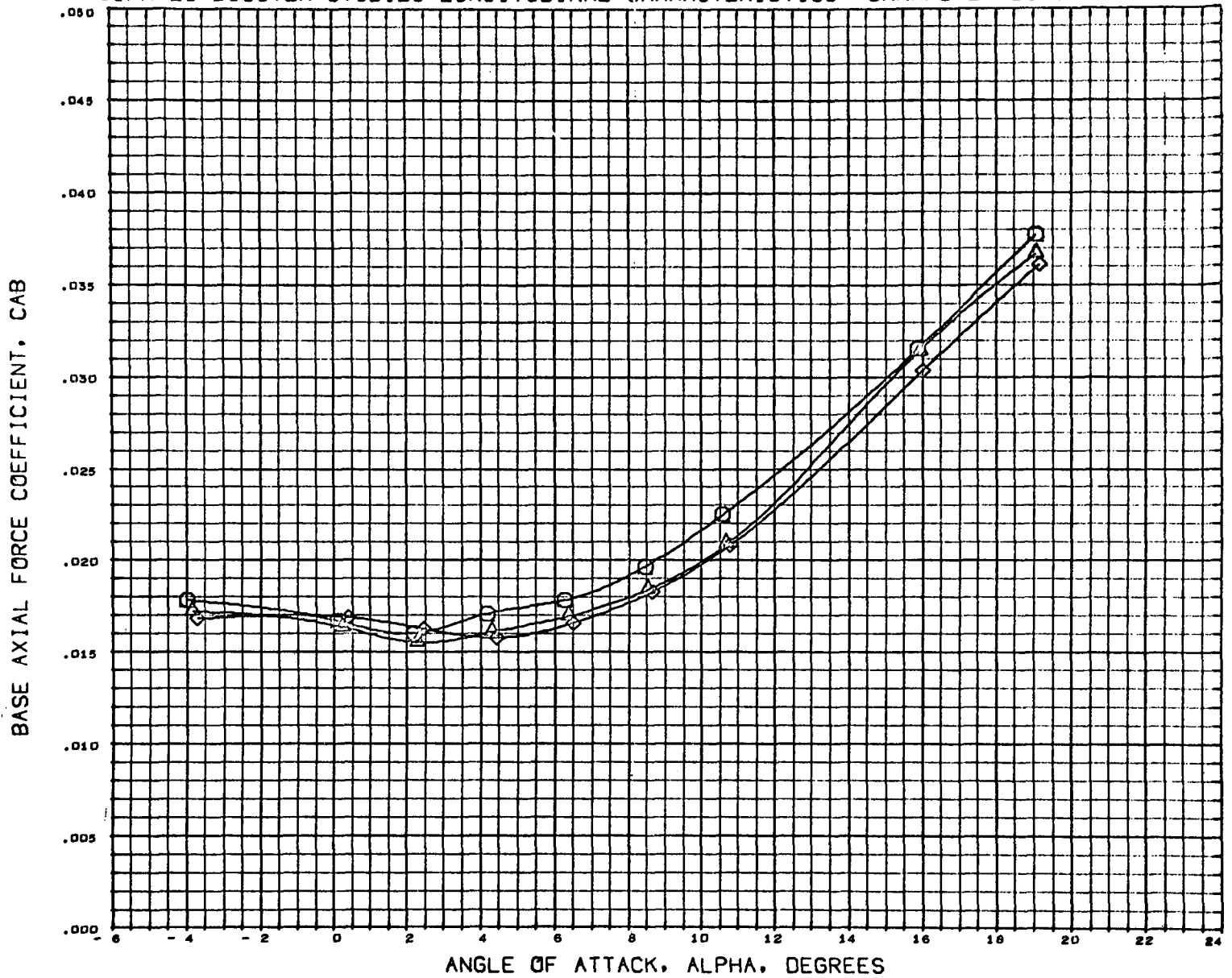
BASE AXIAL FORCE COEFFICIENT, C_{AB}



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.803

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS

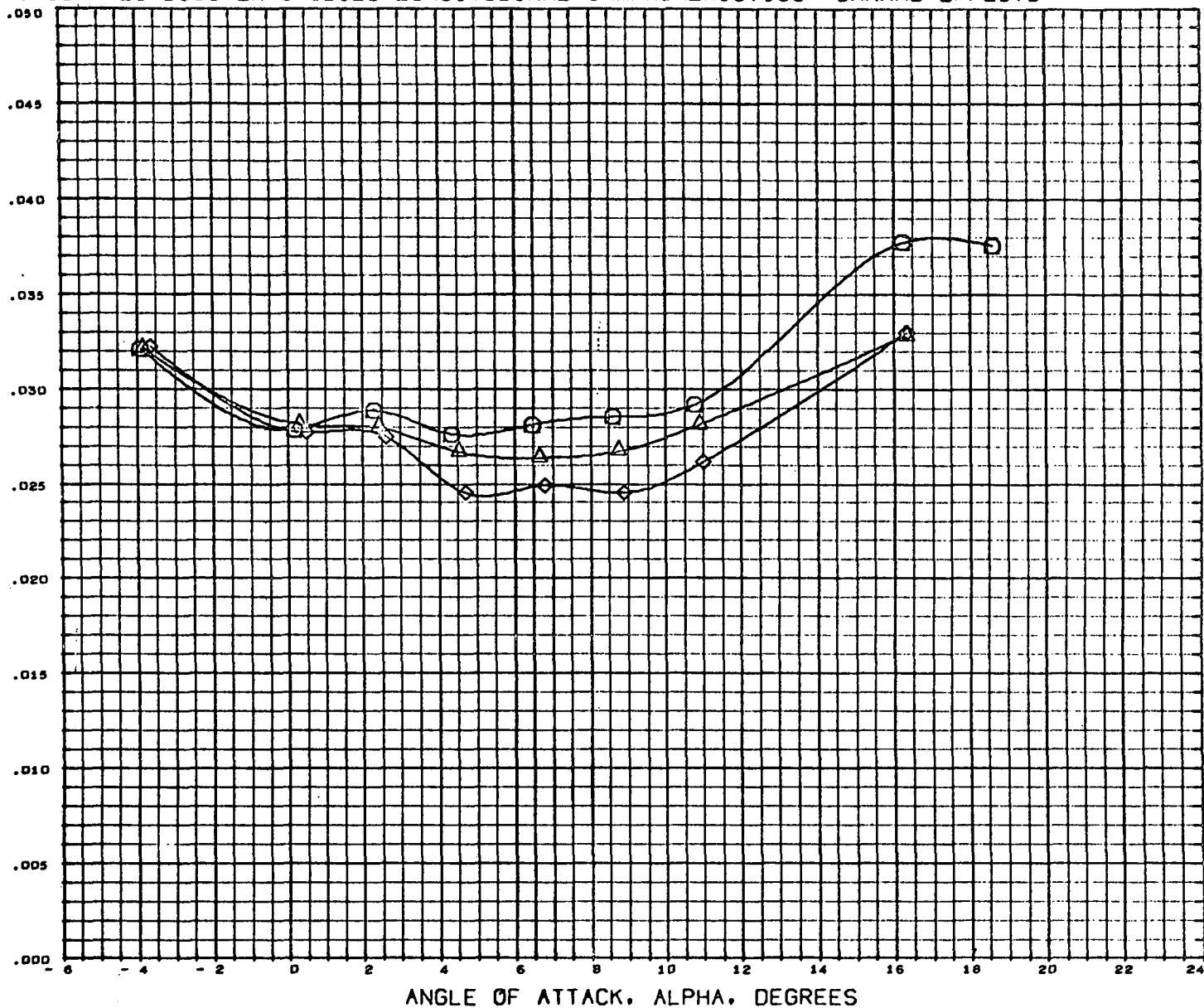


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.903

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS

BASE AXIAL FORCE COEFFICIENT, C_{AB}

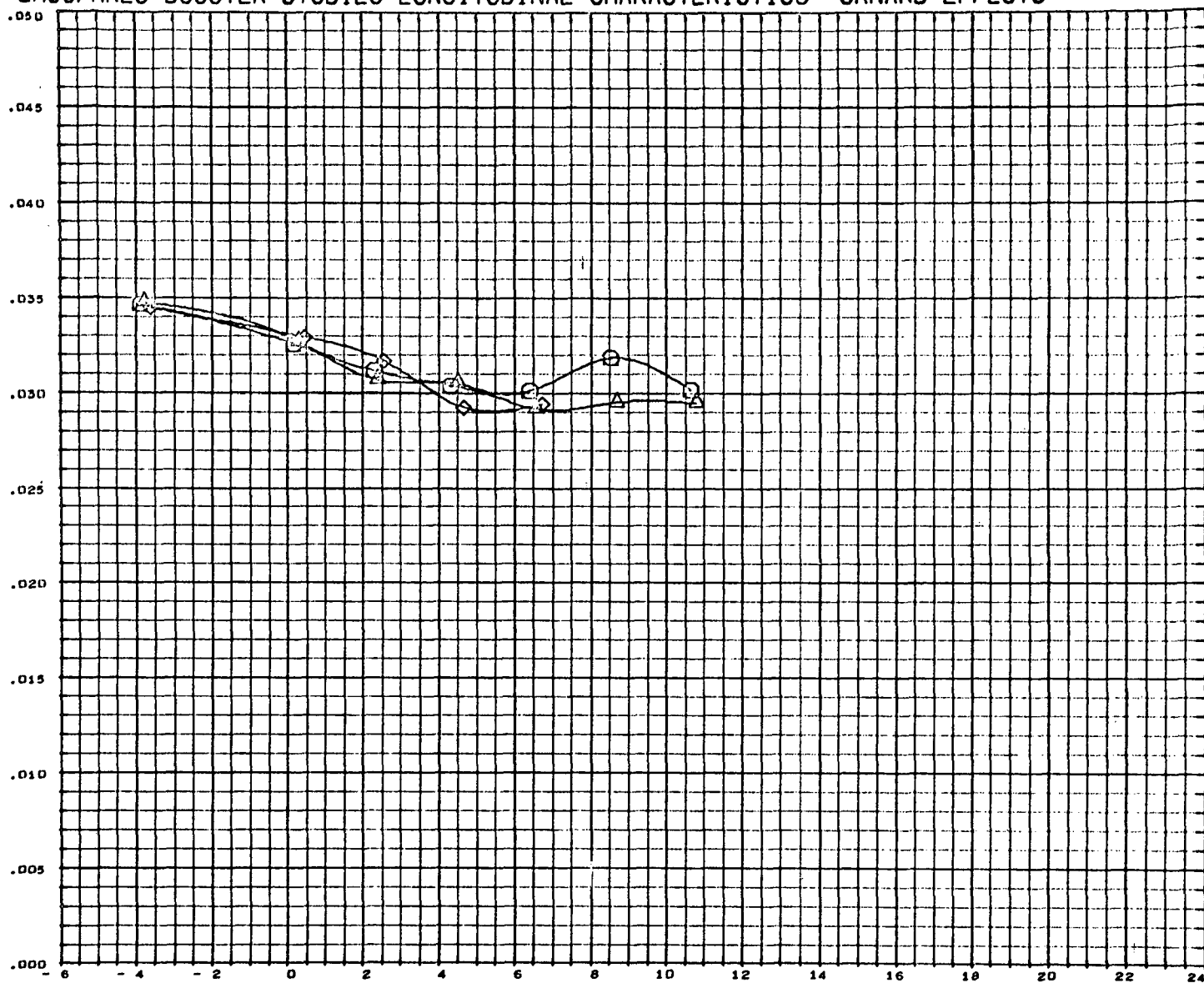


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	DREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0107 FEET
						SCALE	0.0150 SCALE

MACH 1.003

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS

BASE AXIAL FORCE COEFFICIENT, C_{AB}

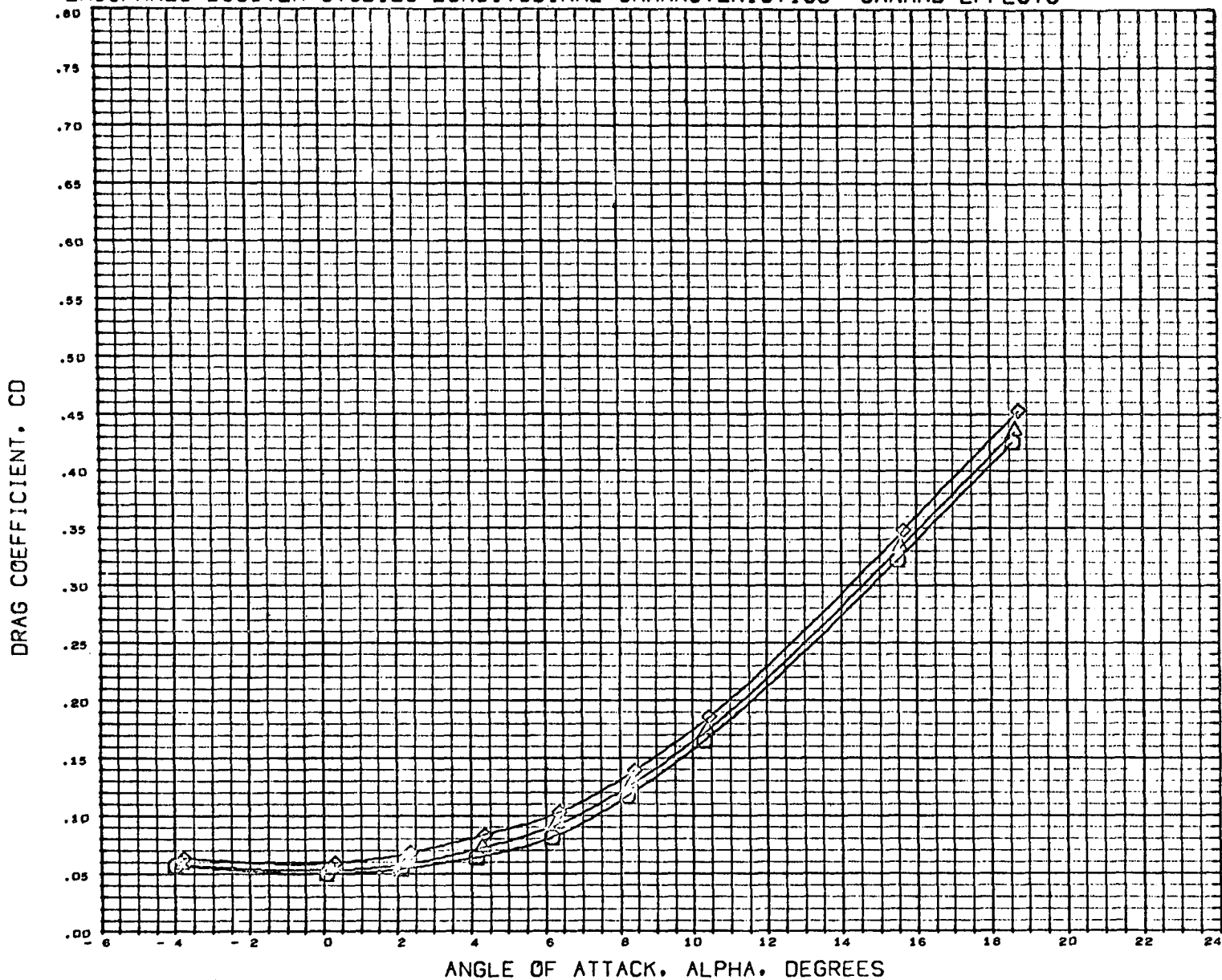


ANGLE OF ATTACK, ALPHA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3001)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(RN3021)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3033)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF	3.4530 FEET
						XMRF	2.5950 FEET
						YMRF	0.0000 FEET
						ZMRF	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 1.122

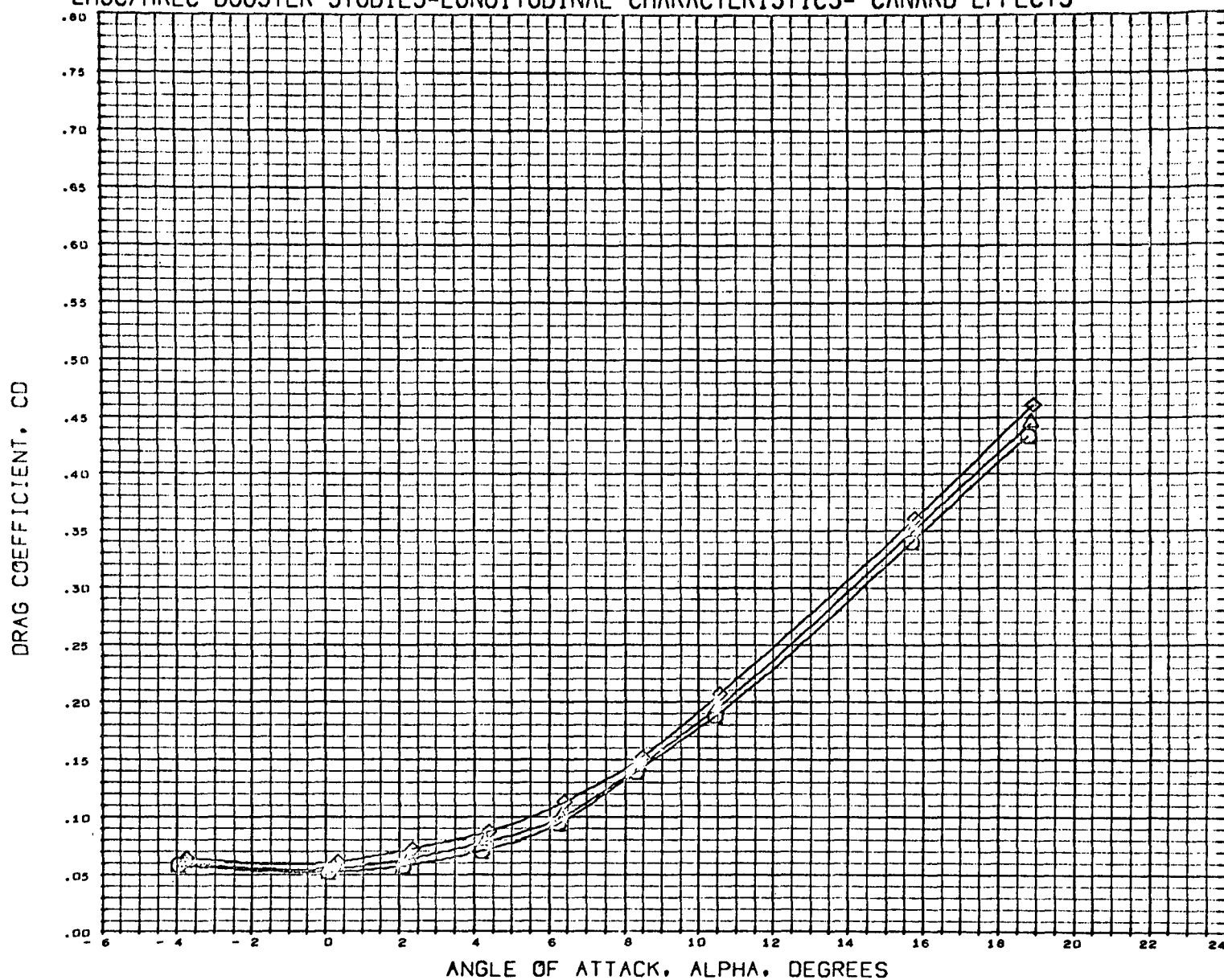
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	DREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.703

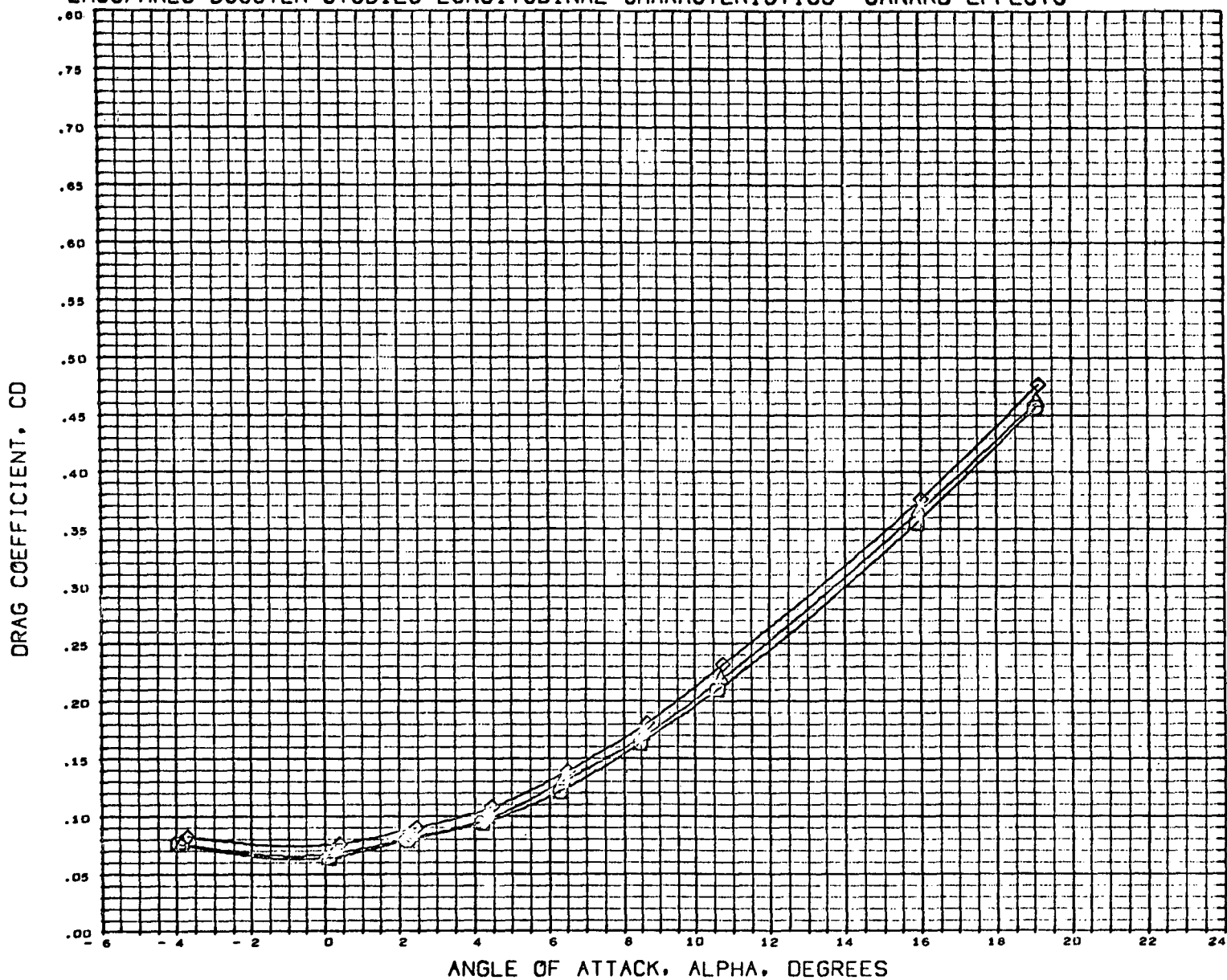
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.803

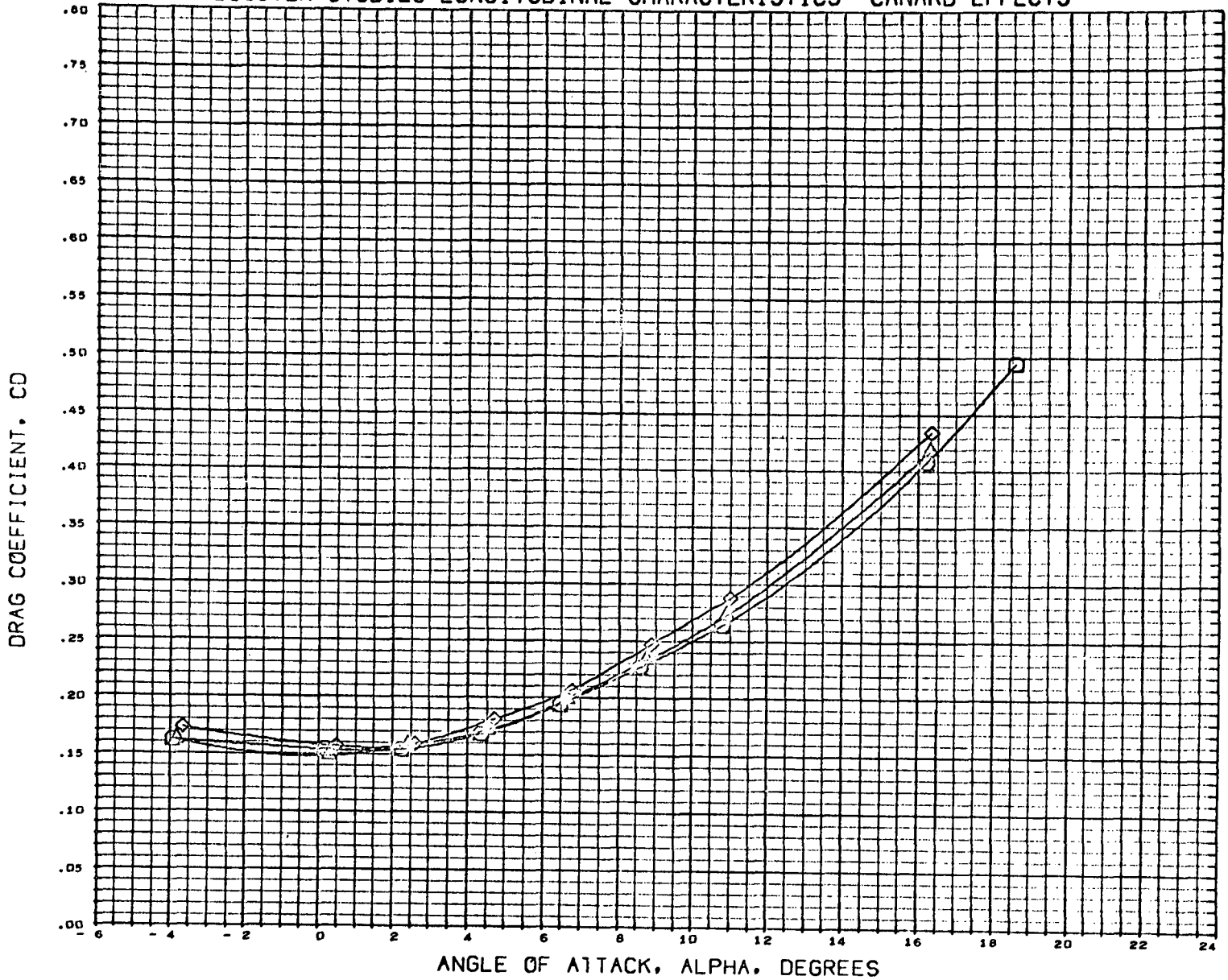
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.903

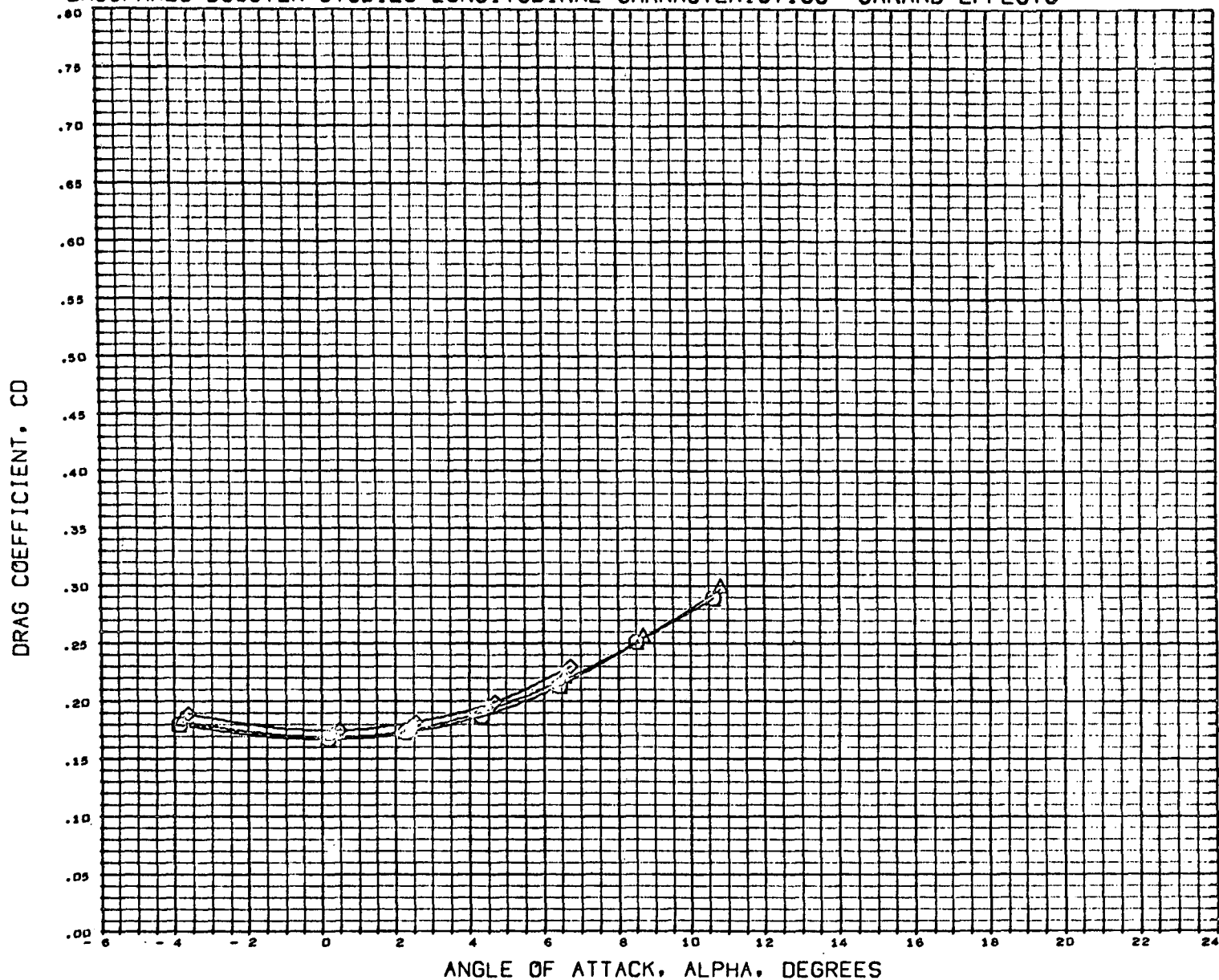
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3001)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3021)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3033)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF	3.4530 FEET
							XMRP	2.5950 FEET
							YMRP	0.0000 FEET
							ZMRP	0.0187 FEET
							SCALE	0.0150 SCALE

MACH 1.003

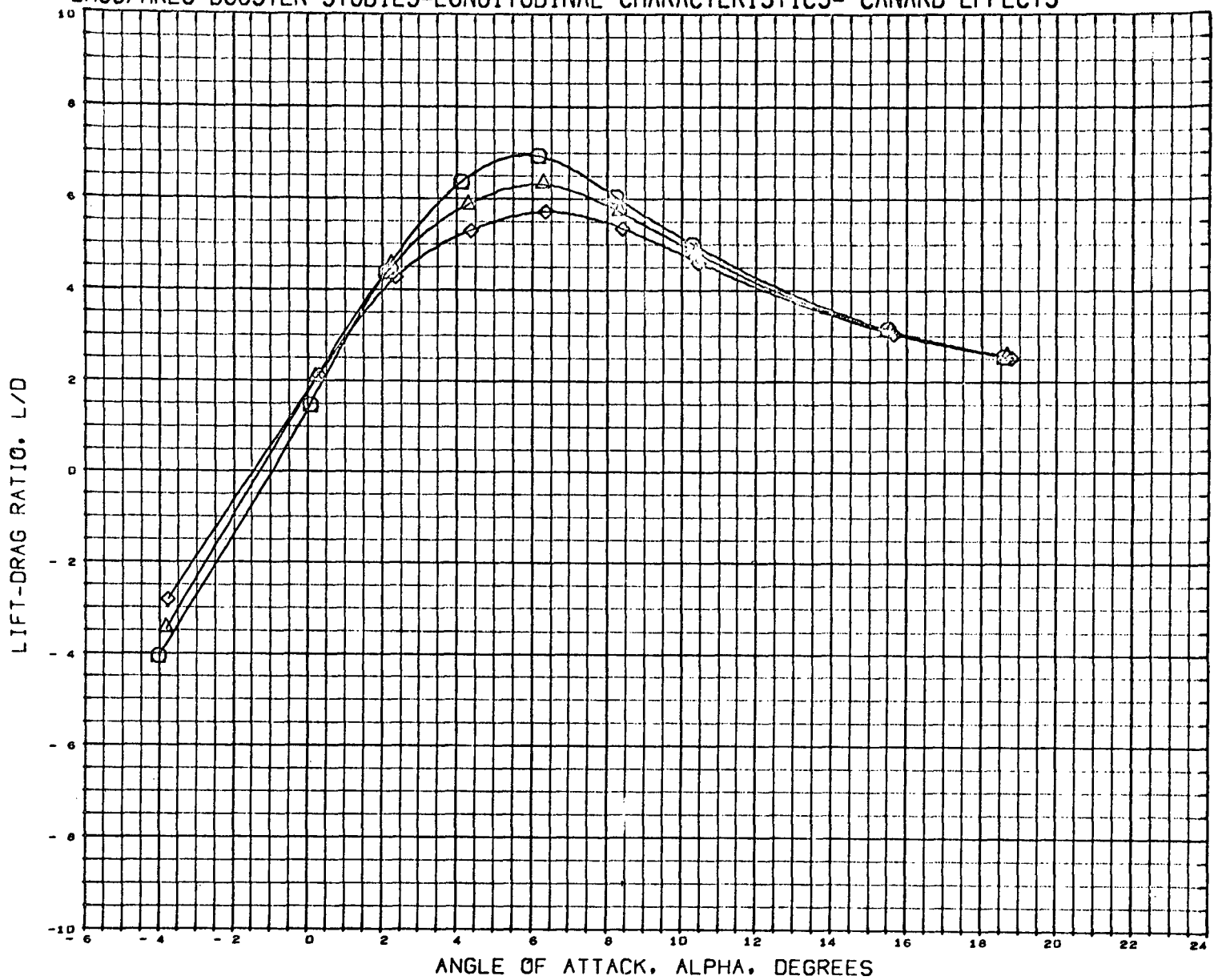
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF	3.4530 FEET
						XMRF	2.5950 FEET
						YMRF	0.0000 FEET
						ZMRF	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 1.122

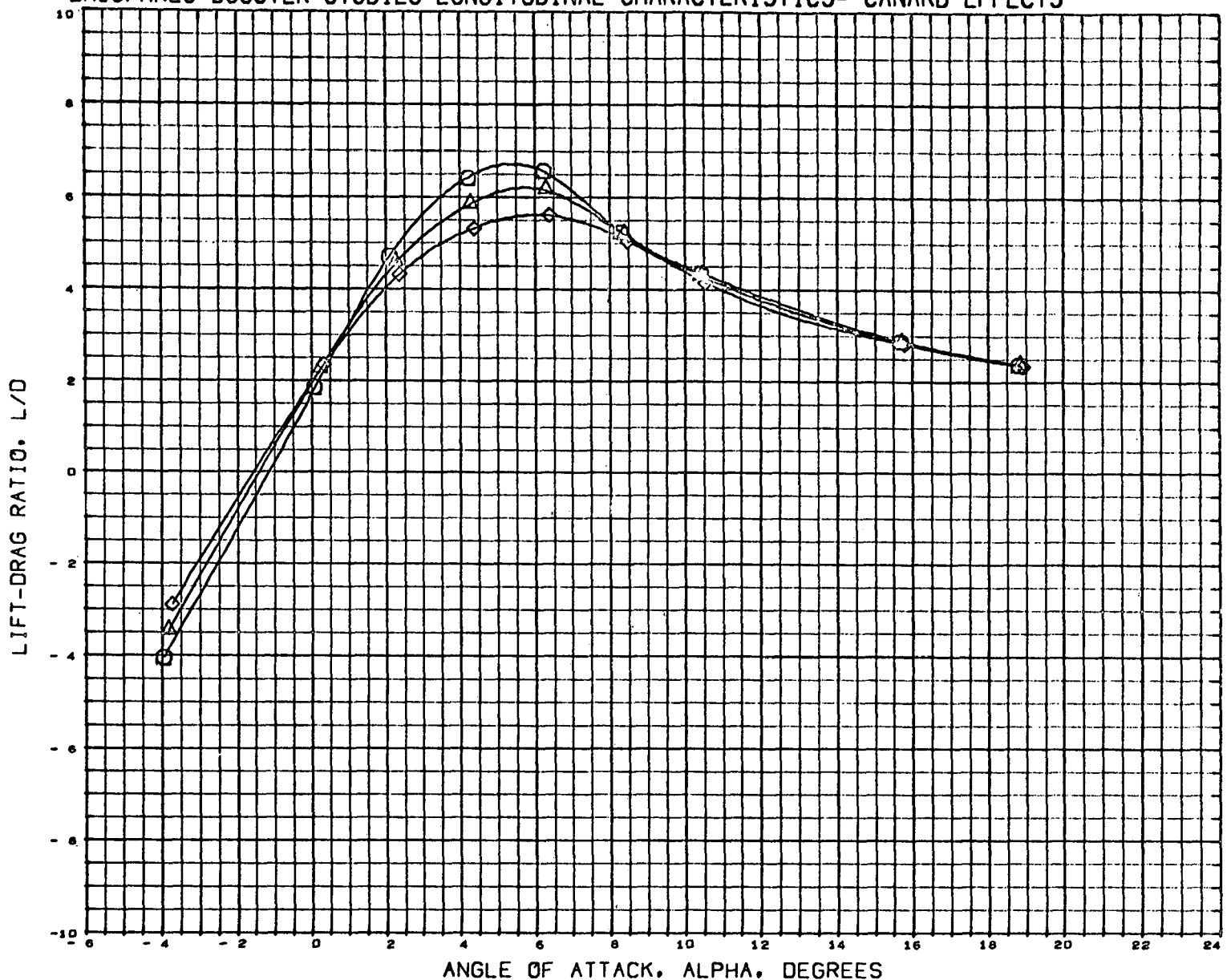
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.703

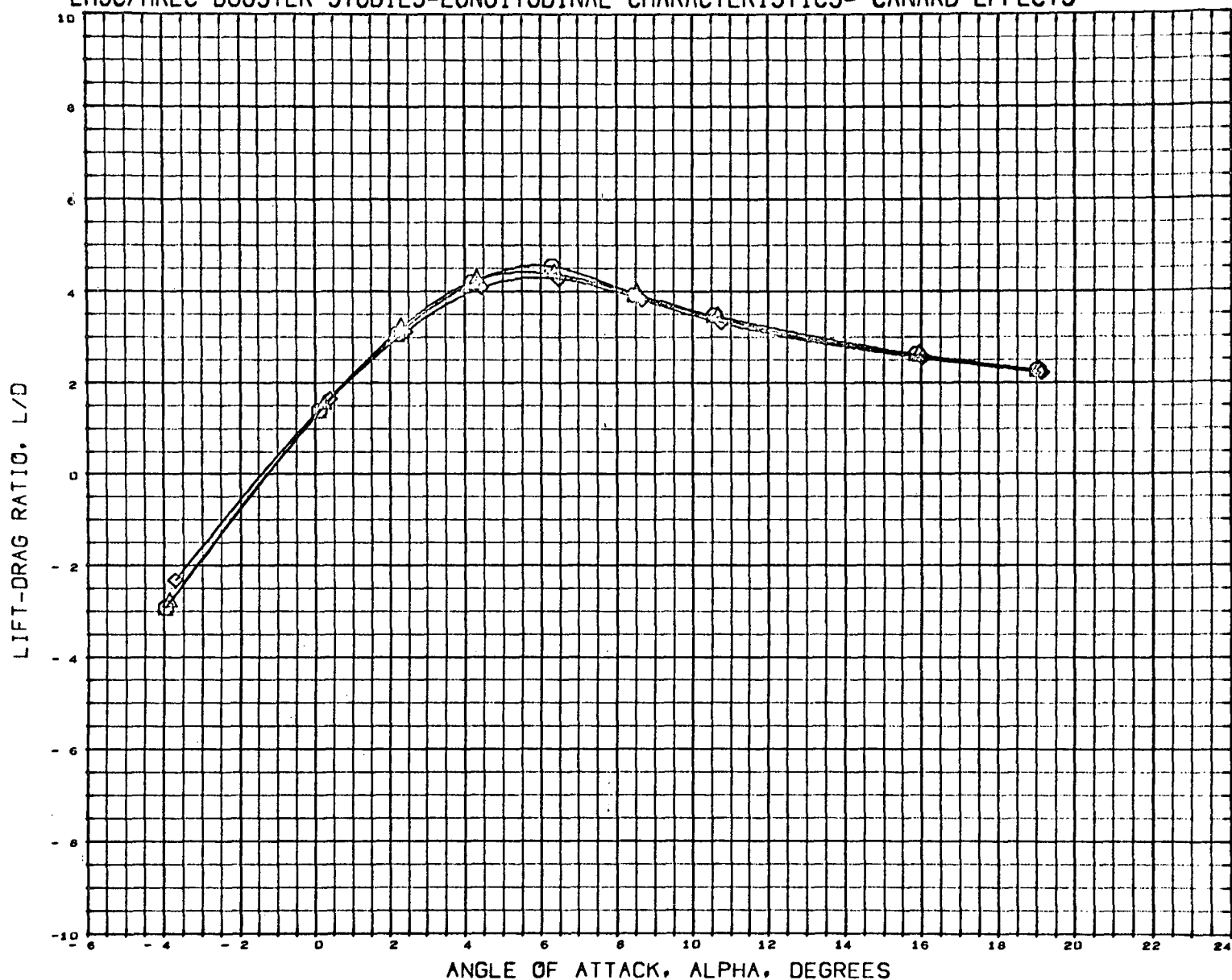
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.803

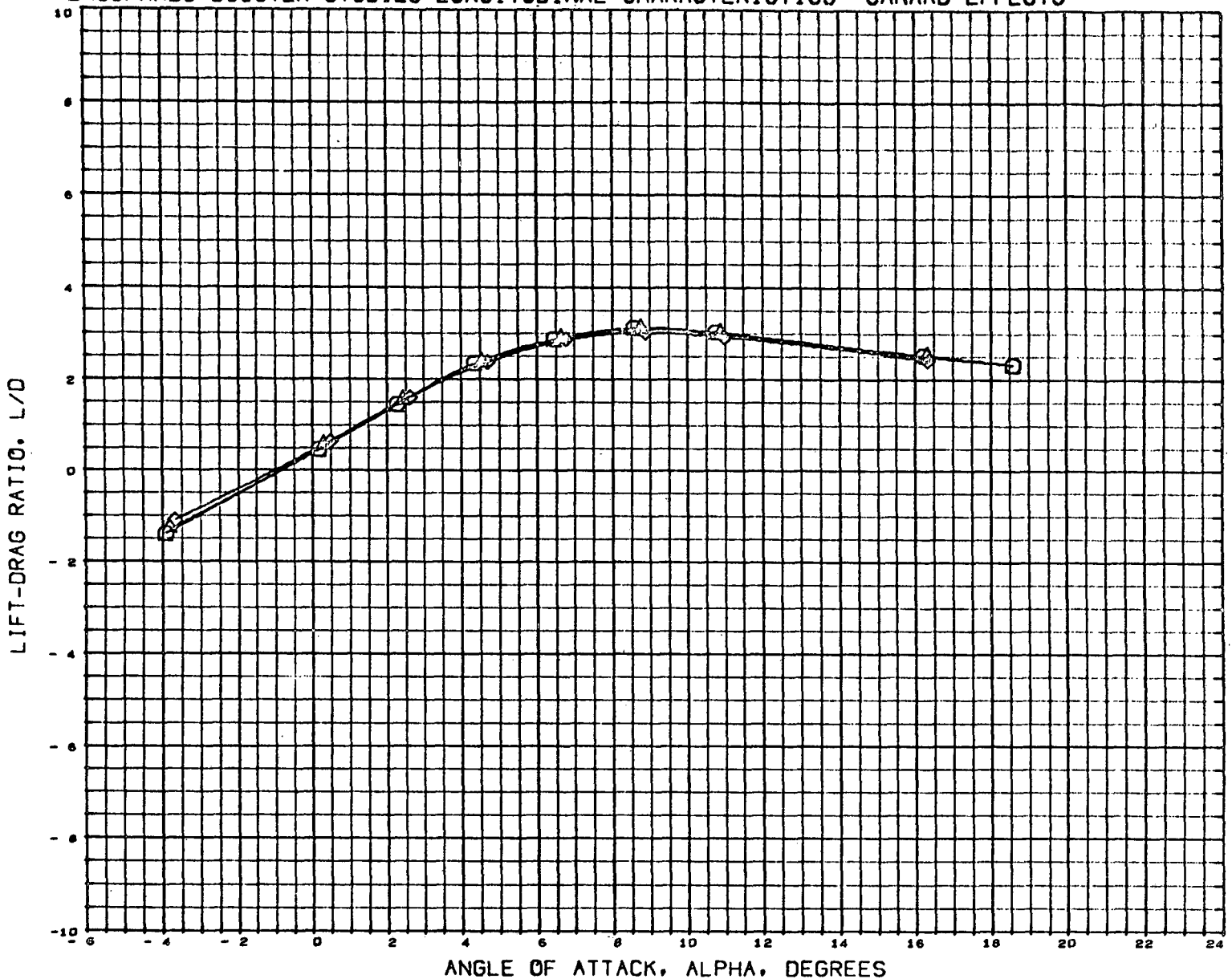
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LRCF	3.4530 FEET
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.903

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF	3.4530 FEET
						XMRF	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 1.003

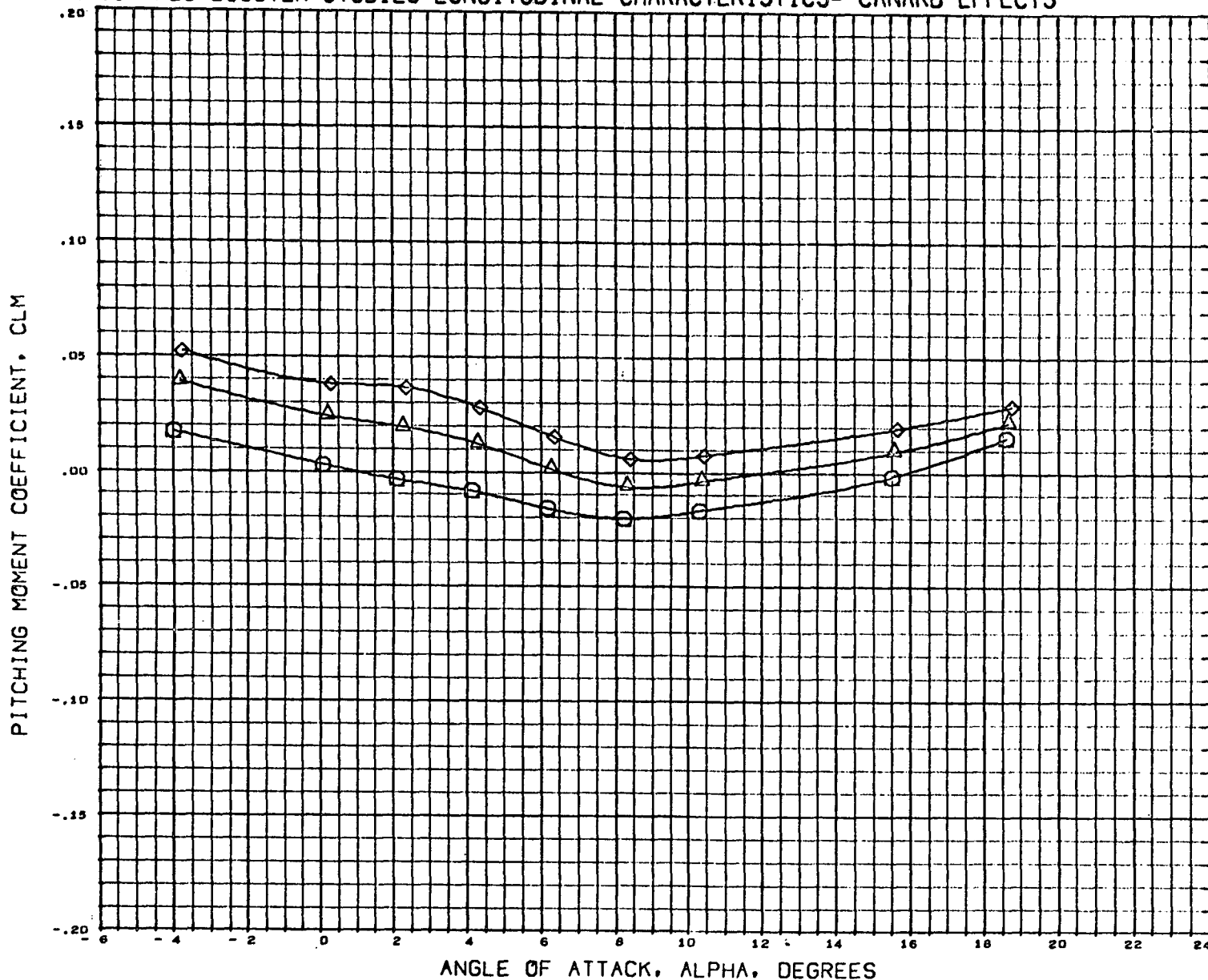
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 1.122

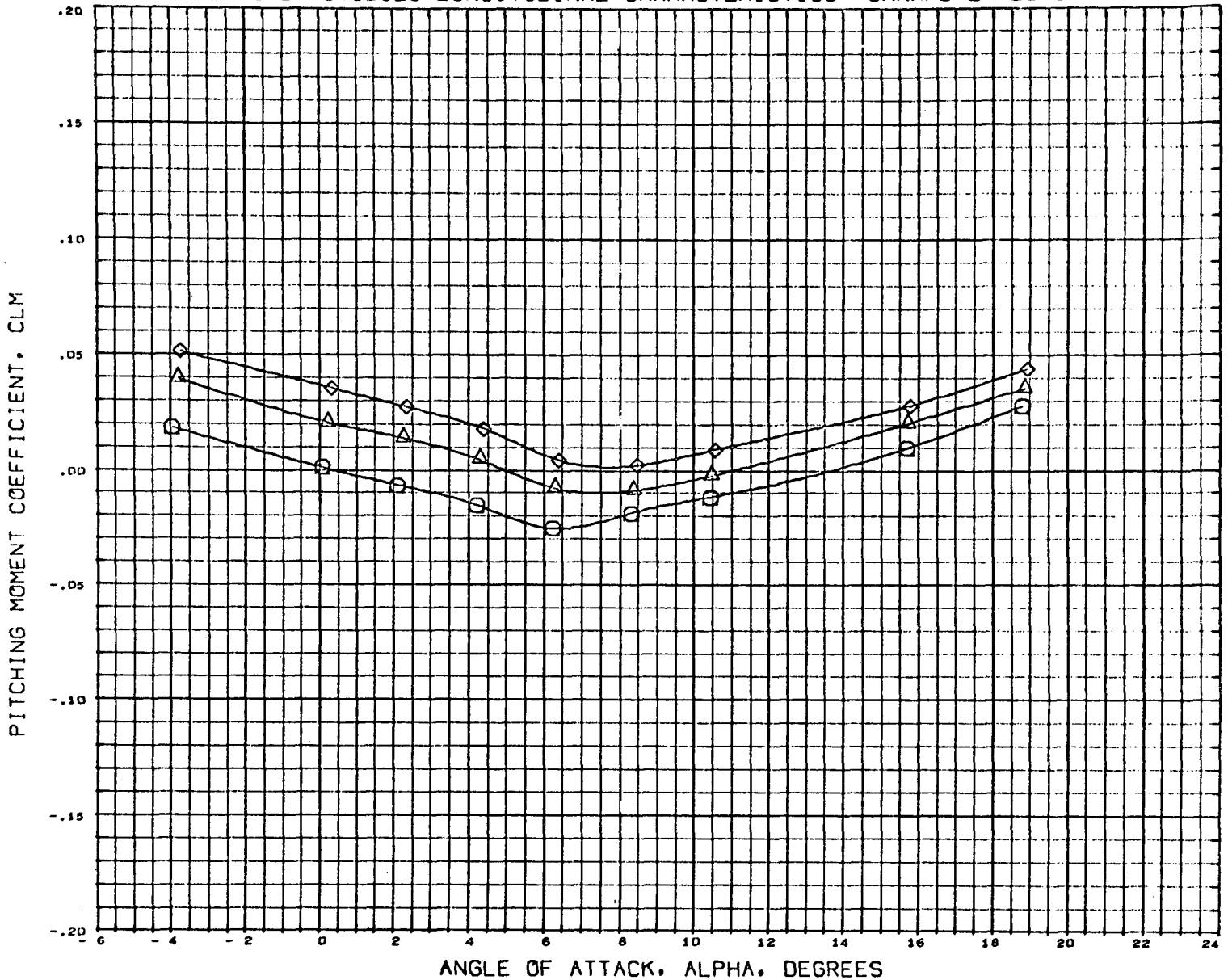
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3001)	NSRDC-321D,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3021)	NSRDC-321D,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3033)	NSRDC-321D,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.703

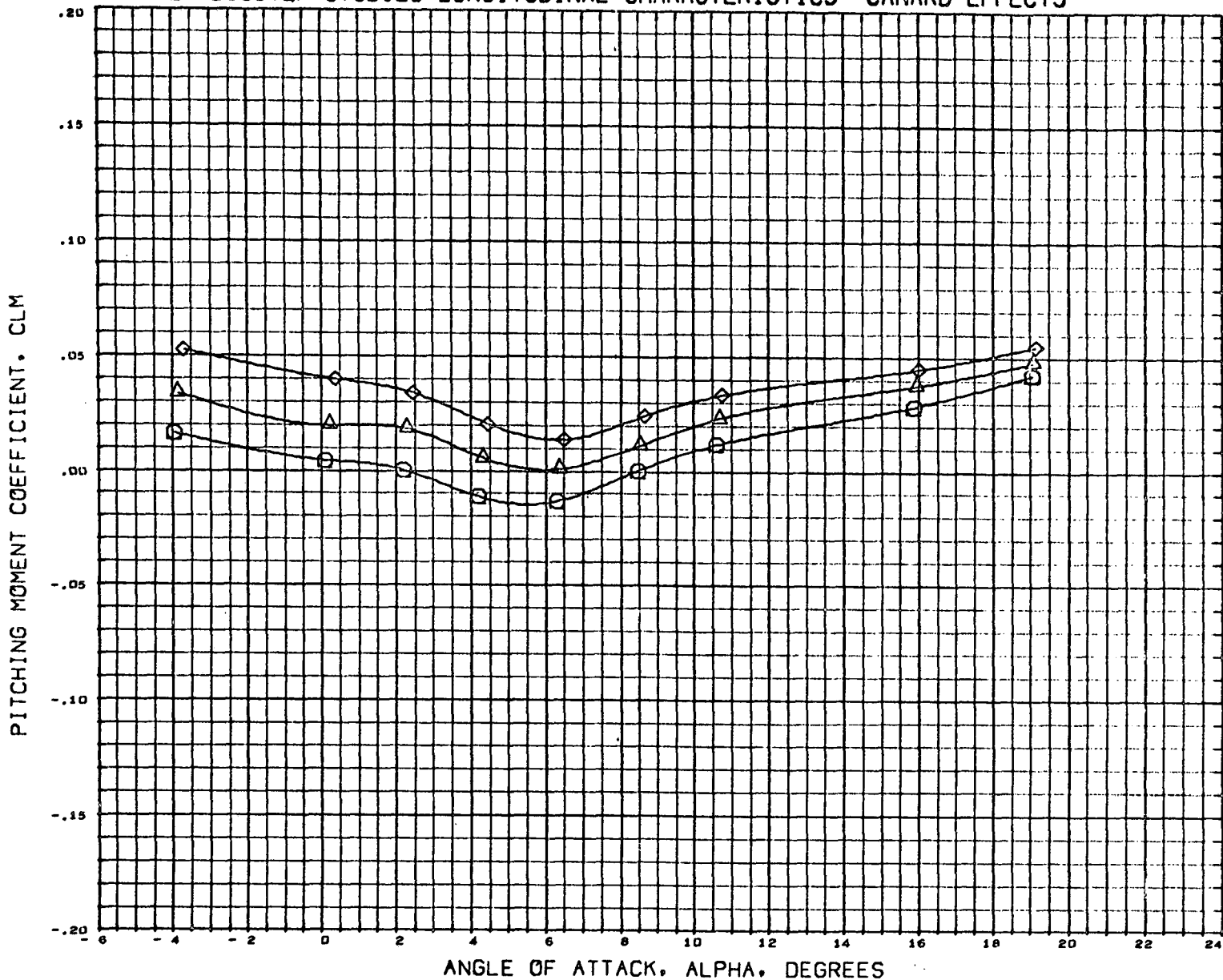
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.803

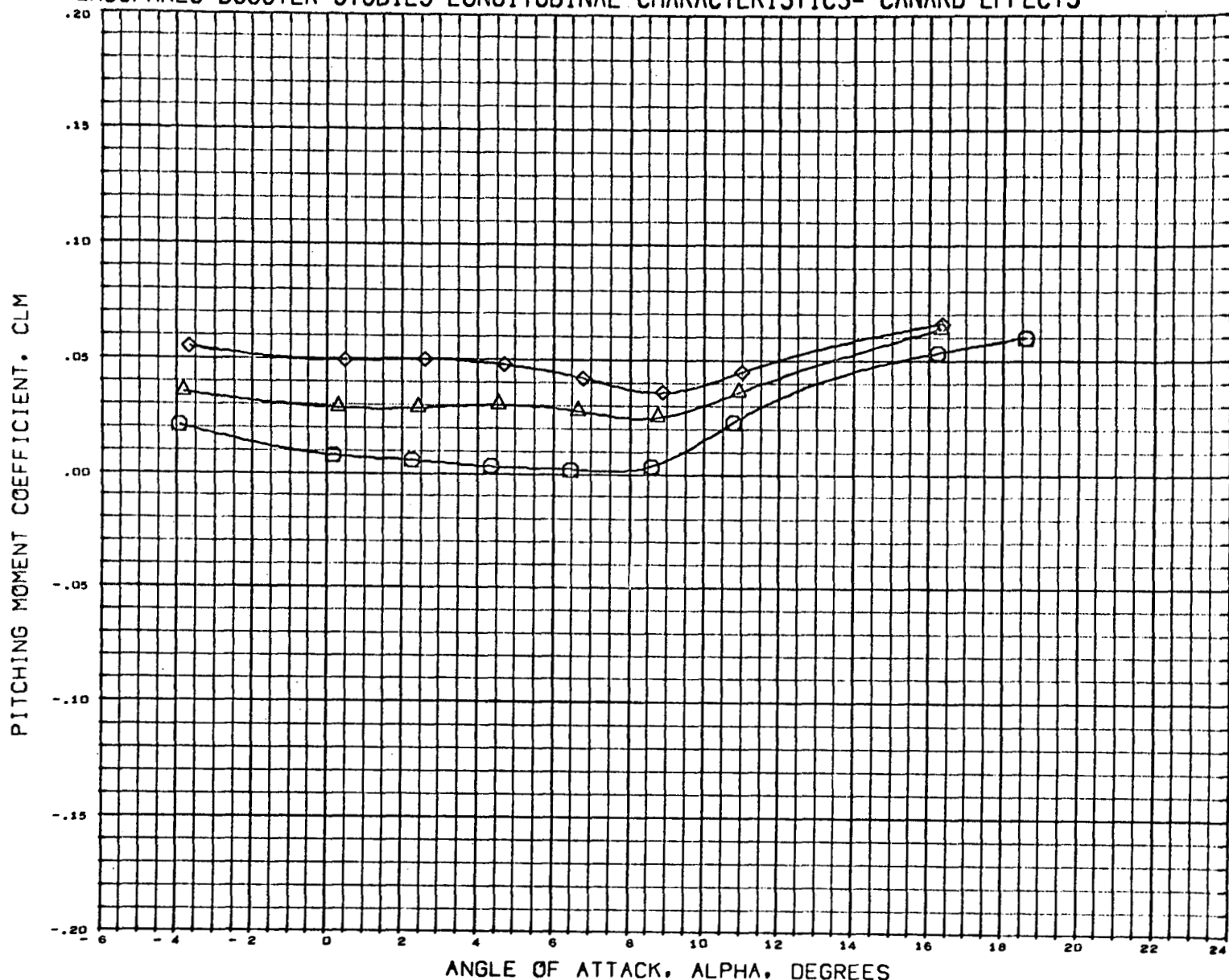
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET SYMBOL	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3001)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3021)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3033)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF	3.4530 FEET
							XMRF	2.5950 FEET
							YMRP	0.0000 FEET
							ZMRP	0.0187 FEET
							SCALE	0.0150 SCALE

MACH 0.903

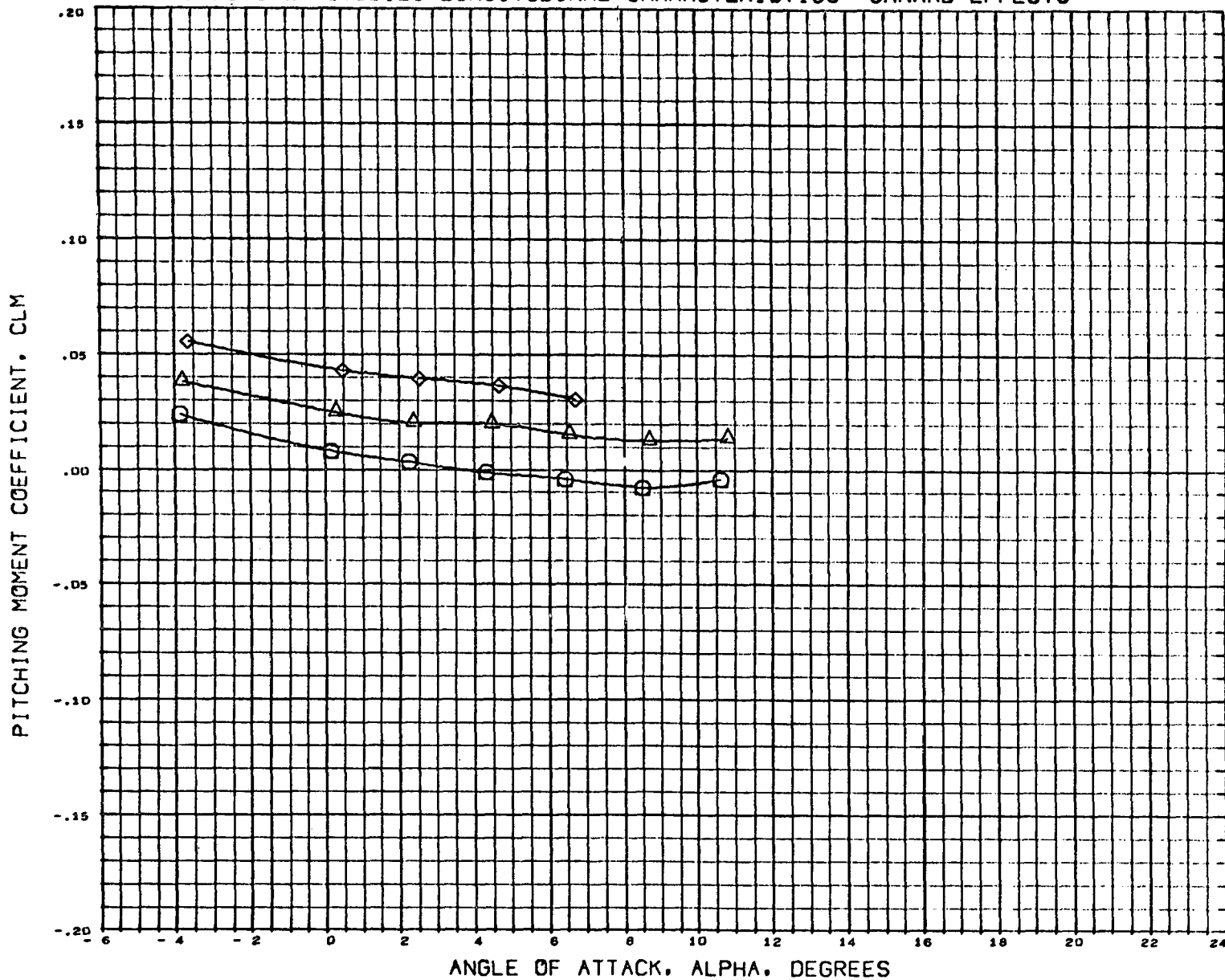
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF 1.3550 50.FT.
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF 3.4530 FEET
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 1.003

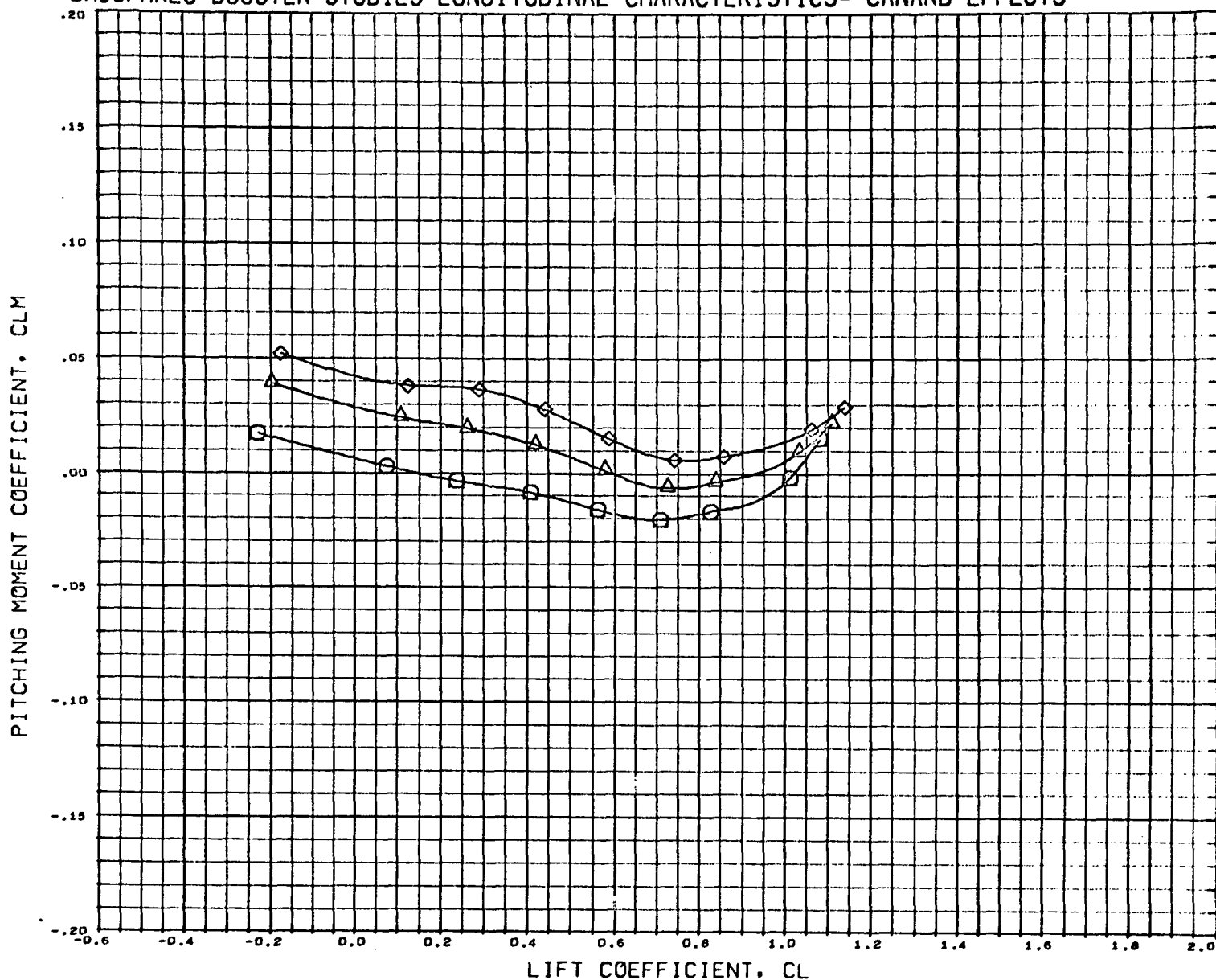
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 1.122

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS

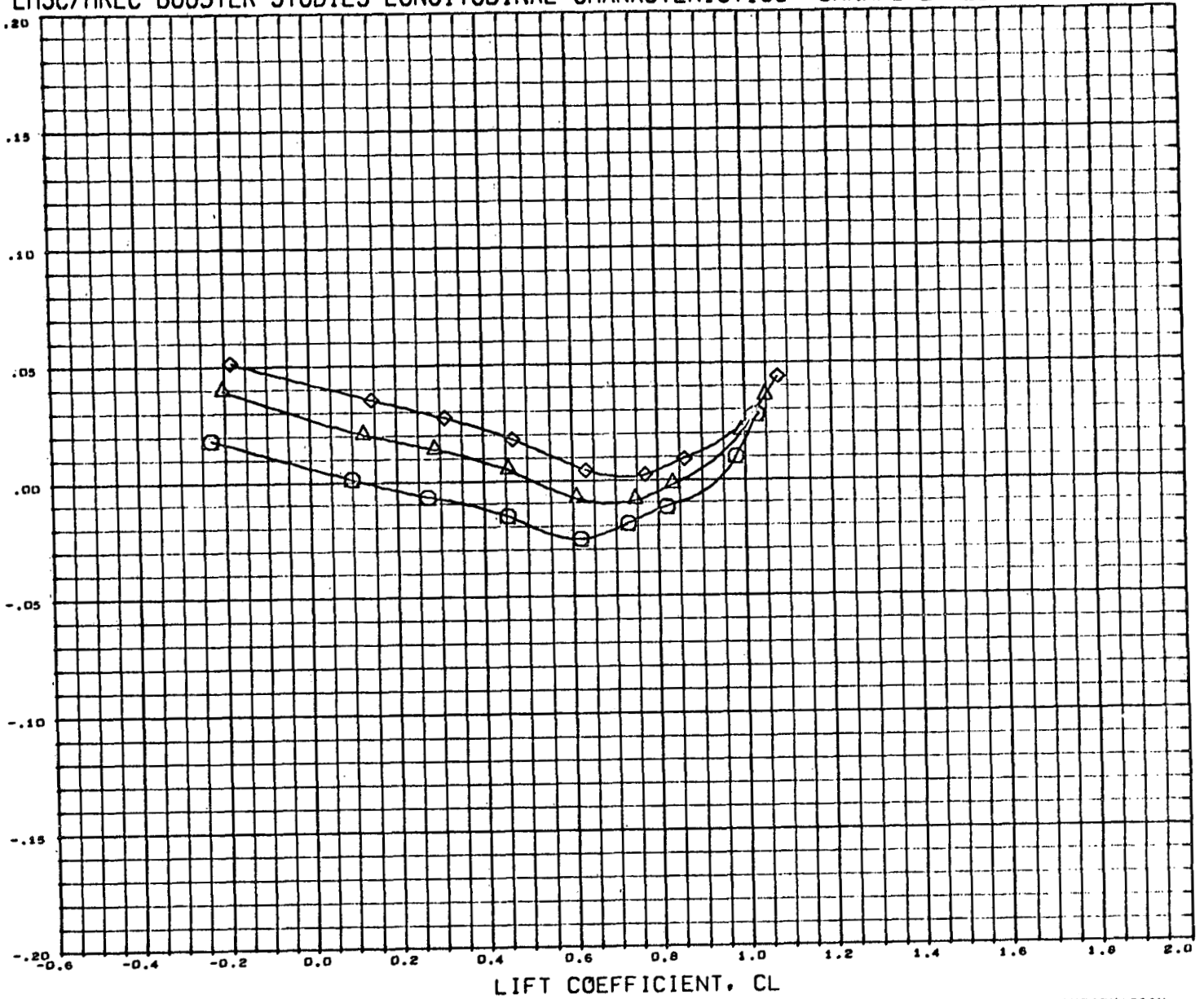


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.793

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS

PITCHING MOMENT COEFFICIENT, CLM



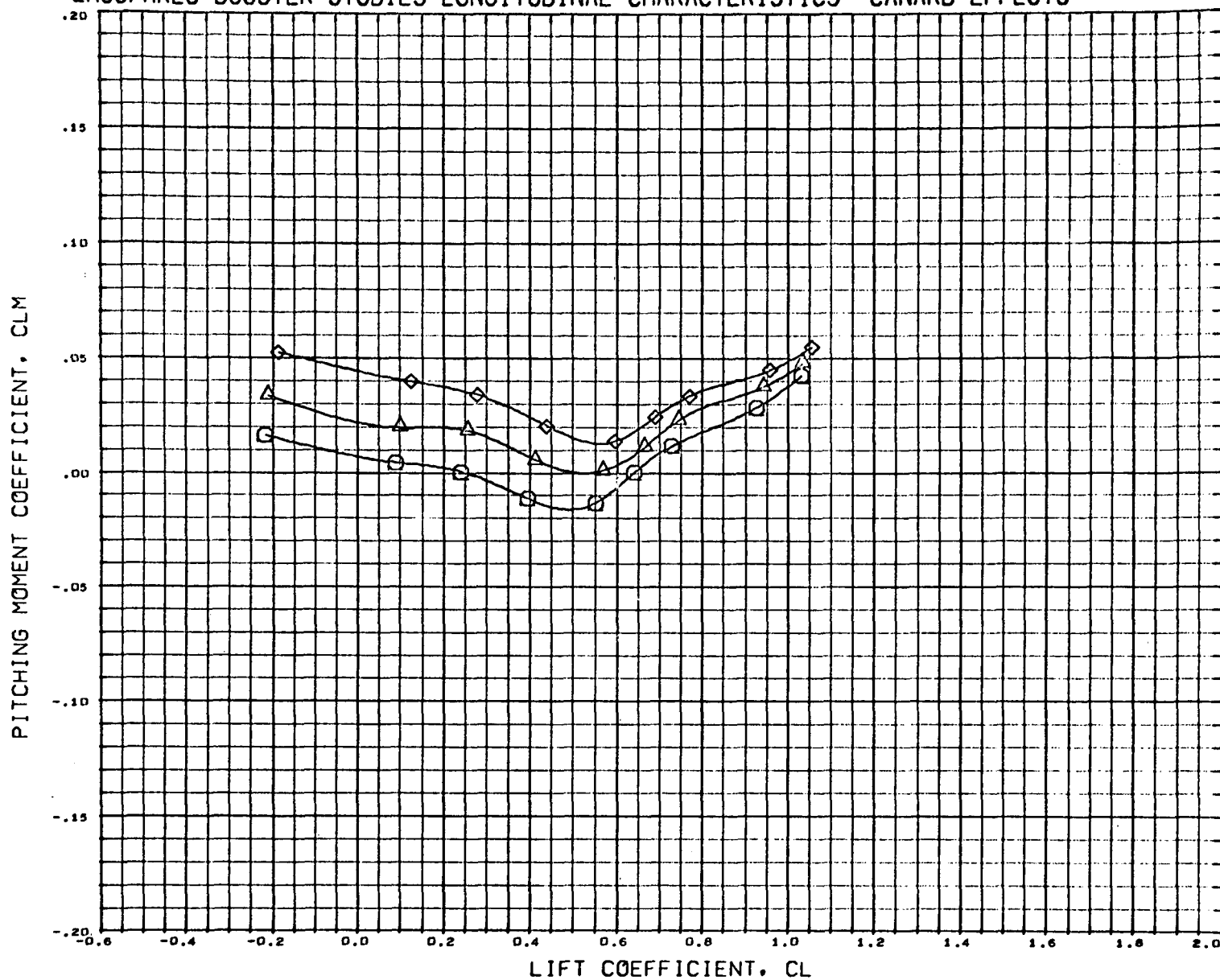
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1

ELEVTR	AILRON	RUDDER	CANARD
0.000	0.000	0.000	0.000
0.000	0.000	0.000	10.000
0.000	0.000	0.000	20.000

REFERENCE INFORMATION		
SREF	1.3550	SQ. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMPP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0187	FEET
SCALE	0.0150	SCALE

MACH 0.803

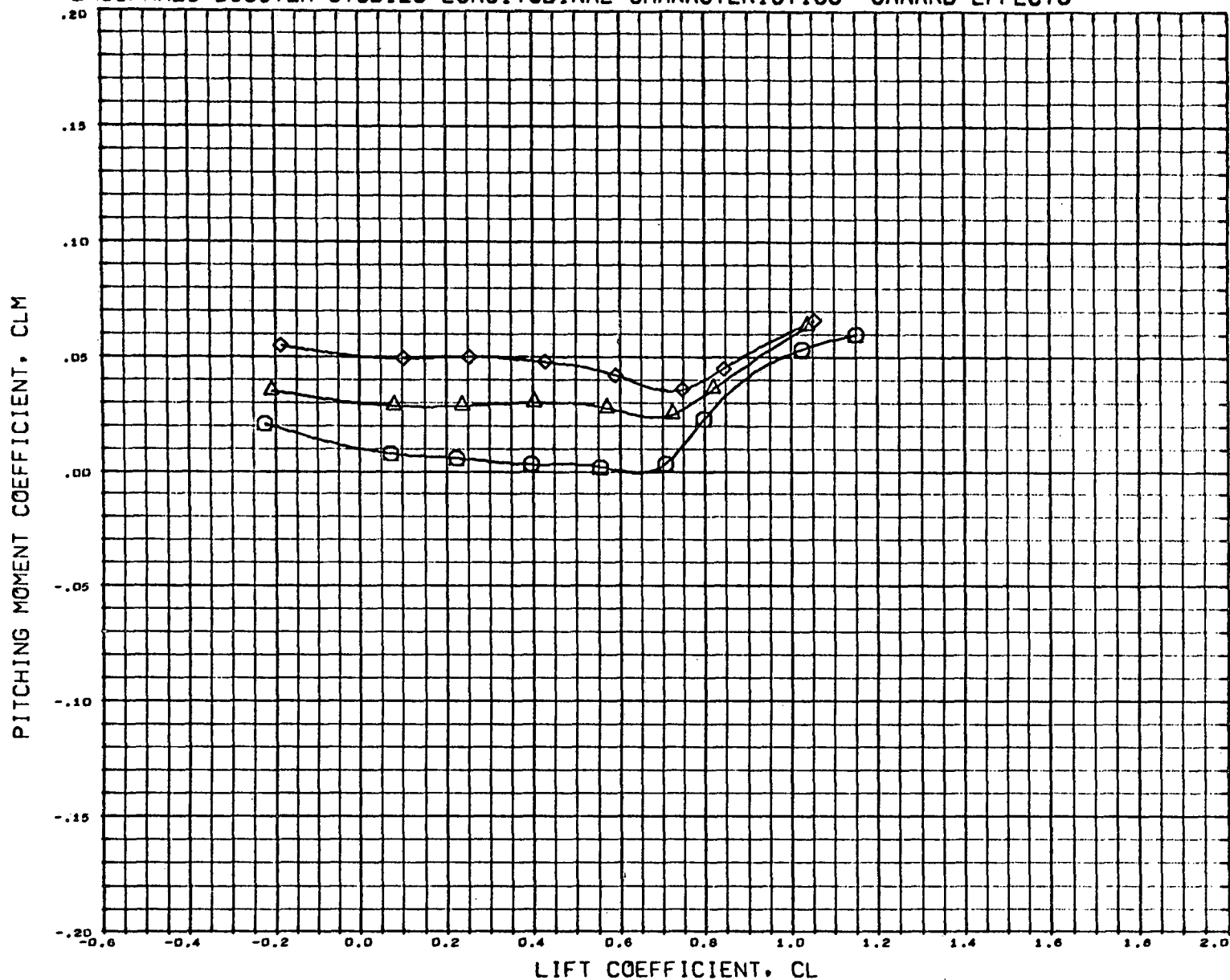
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.903

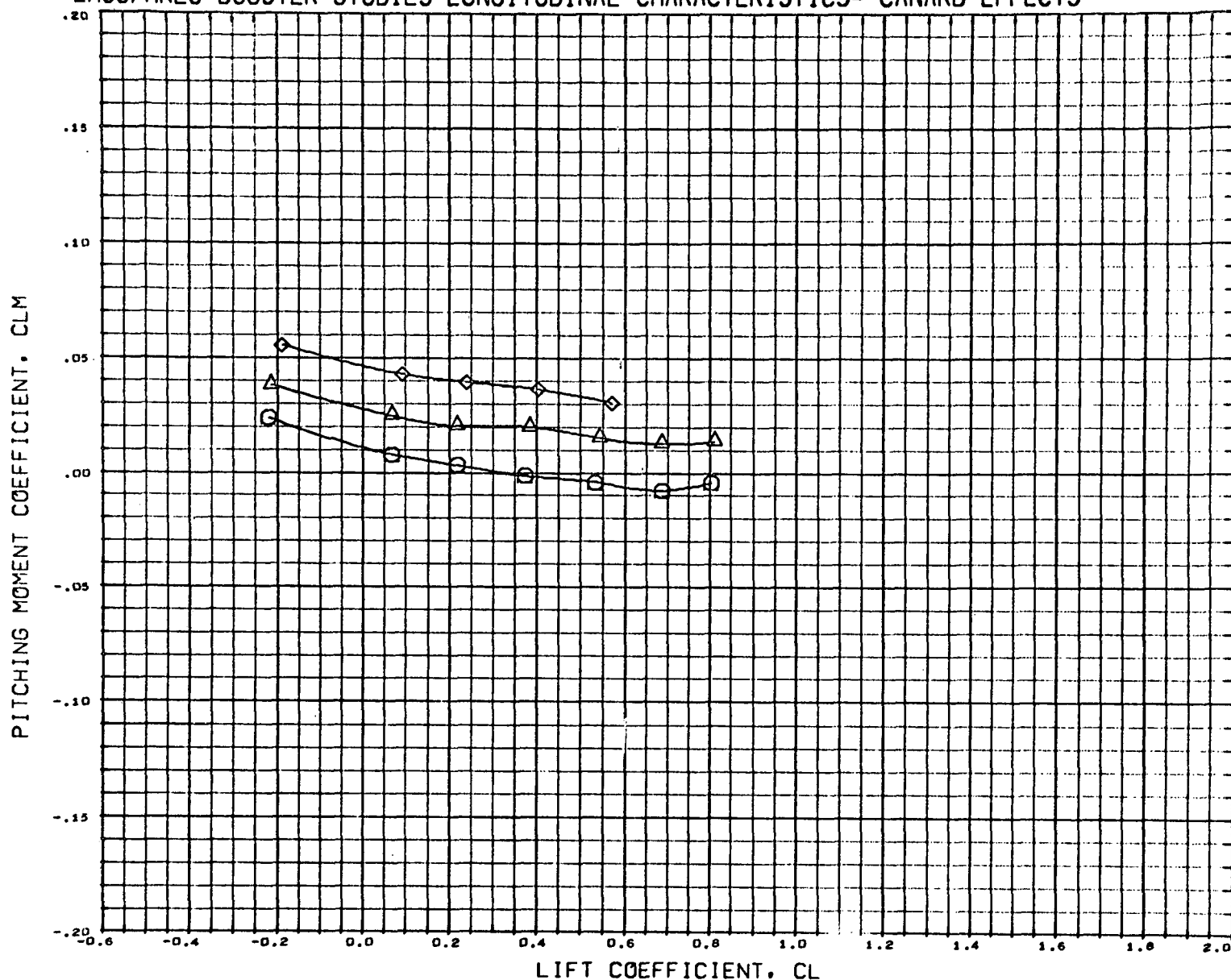
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3033)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 1.003

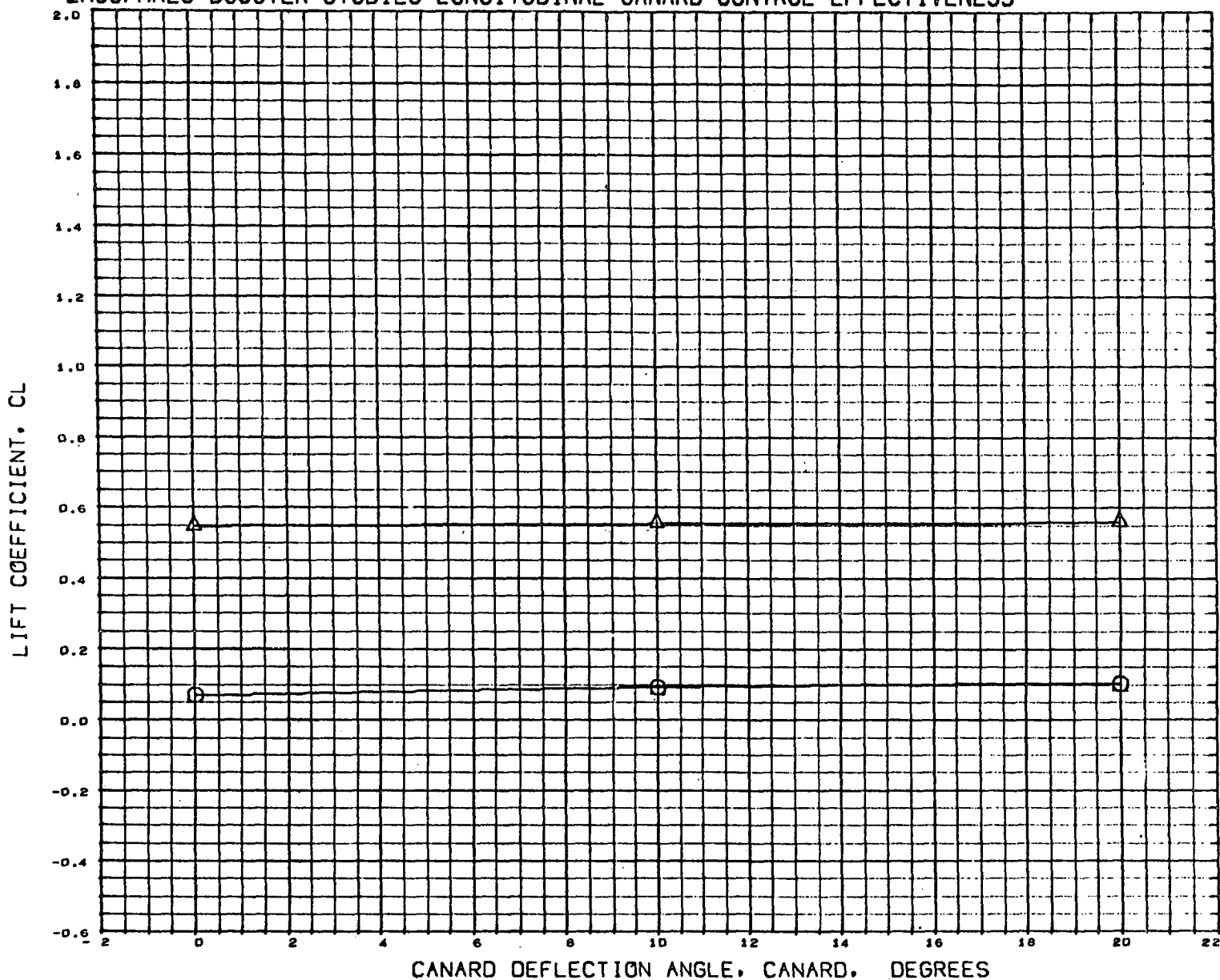
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CANARD EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3001)	NSRCC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3021)	NSRCC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3033)	NSRCC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	20.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 1.122

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CANARD CONTROL EFFECTIVENESS

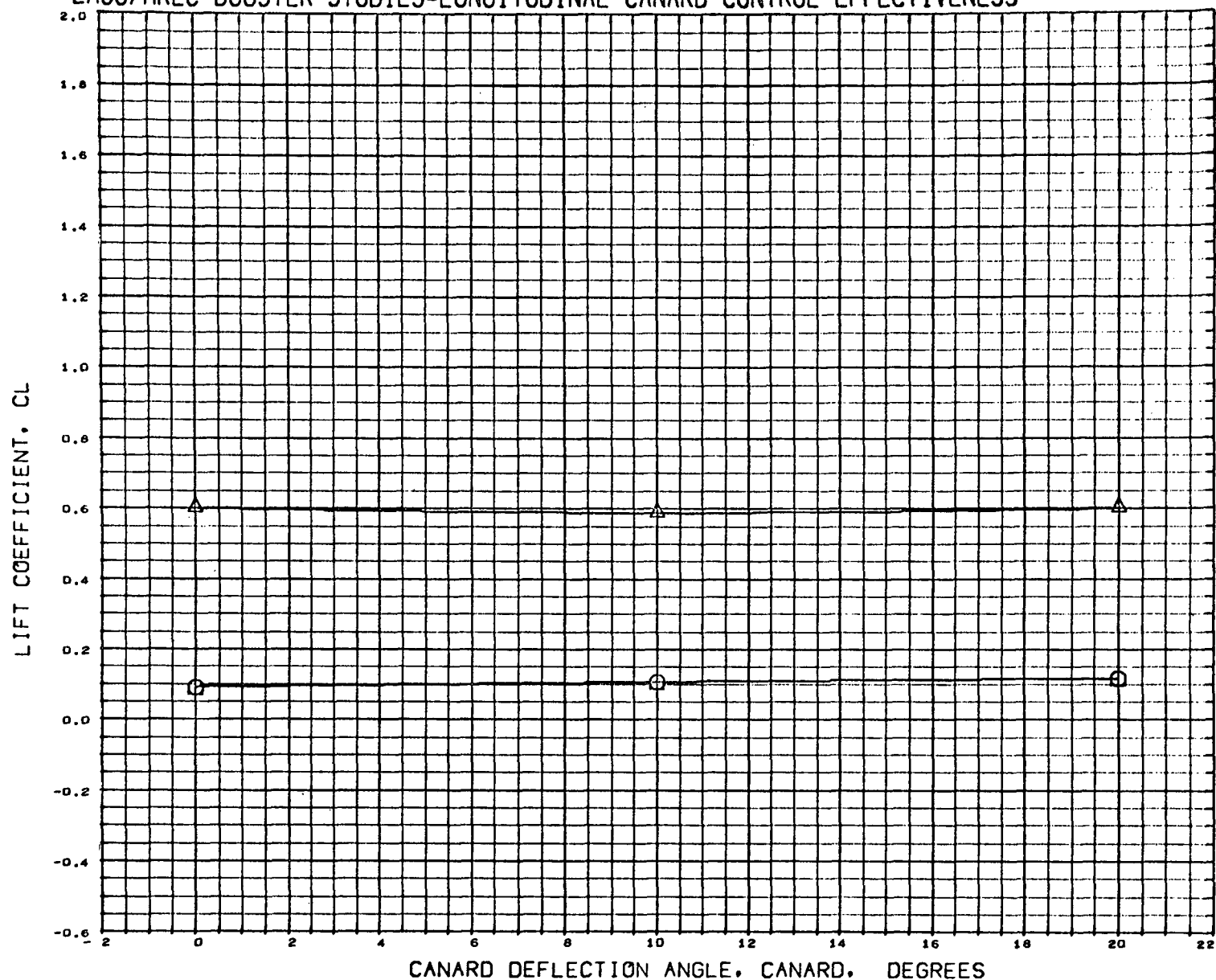


SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE			REFERENCE INFORMATION		
O Δ	0.000	<u>MACH</u>	0.700	BETA	0.031	DATASET	CANARD		SREF	1.3550	SQ.FT.
	6.000	INCIDC	3.000	INCIDW	0.000	NN3001	0.000	NN3021	LREF	3.4530	FEET
		MSFLOW	0.000	AILROW	0.000	NN3033	20.000		BREF	3.4530	FEET
		ELEVTR	0.000	RUDDER	0.000				XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000				YMRP	0.0000	FEET
									ZMRP	0.0187	FEET
									SCALE	0.0150	SCALE
		DATA HIST. CODE 1									

NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1

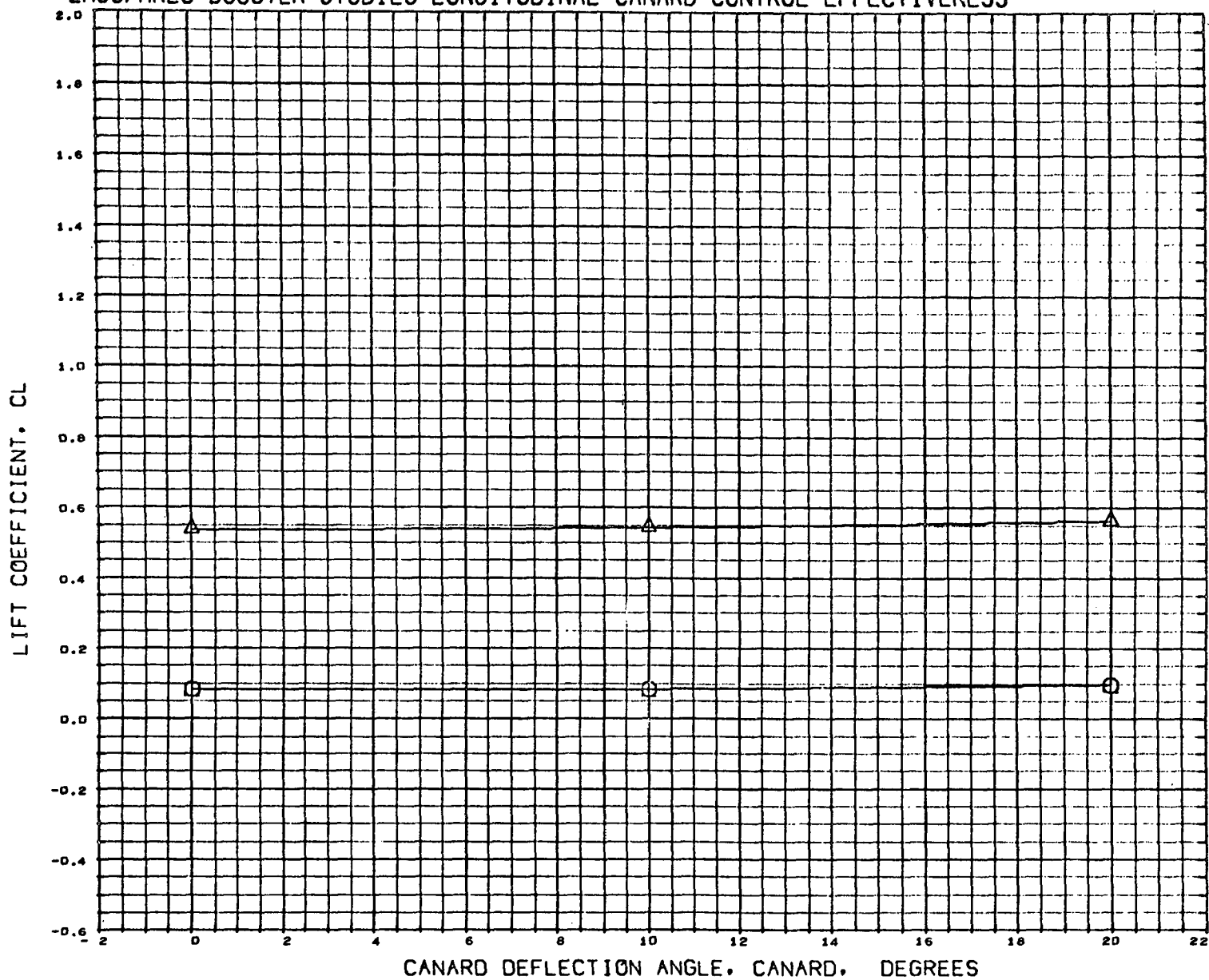
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LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CANARD CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE			REFERENCE INFORMATION		
○	0.000	MACH	0.800	BETA	0.031	DATASET	CANARD		SREF	1.3550	SQ. FT.
△	6.000	INCIDC	3.000	INCIDW	0.000	NN3001	0.000	NN3021	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3033	20.000		BREF	3.4530	FEET
		ELEVTR	0.000	RUDDER	0.000				XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000				YMRP	0.0000	FEET
									ZMRP	0.0187	FEET
									SCALE	0.0150	SCALE
		DATA HIST. CODE I									

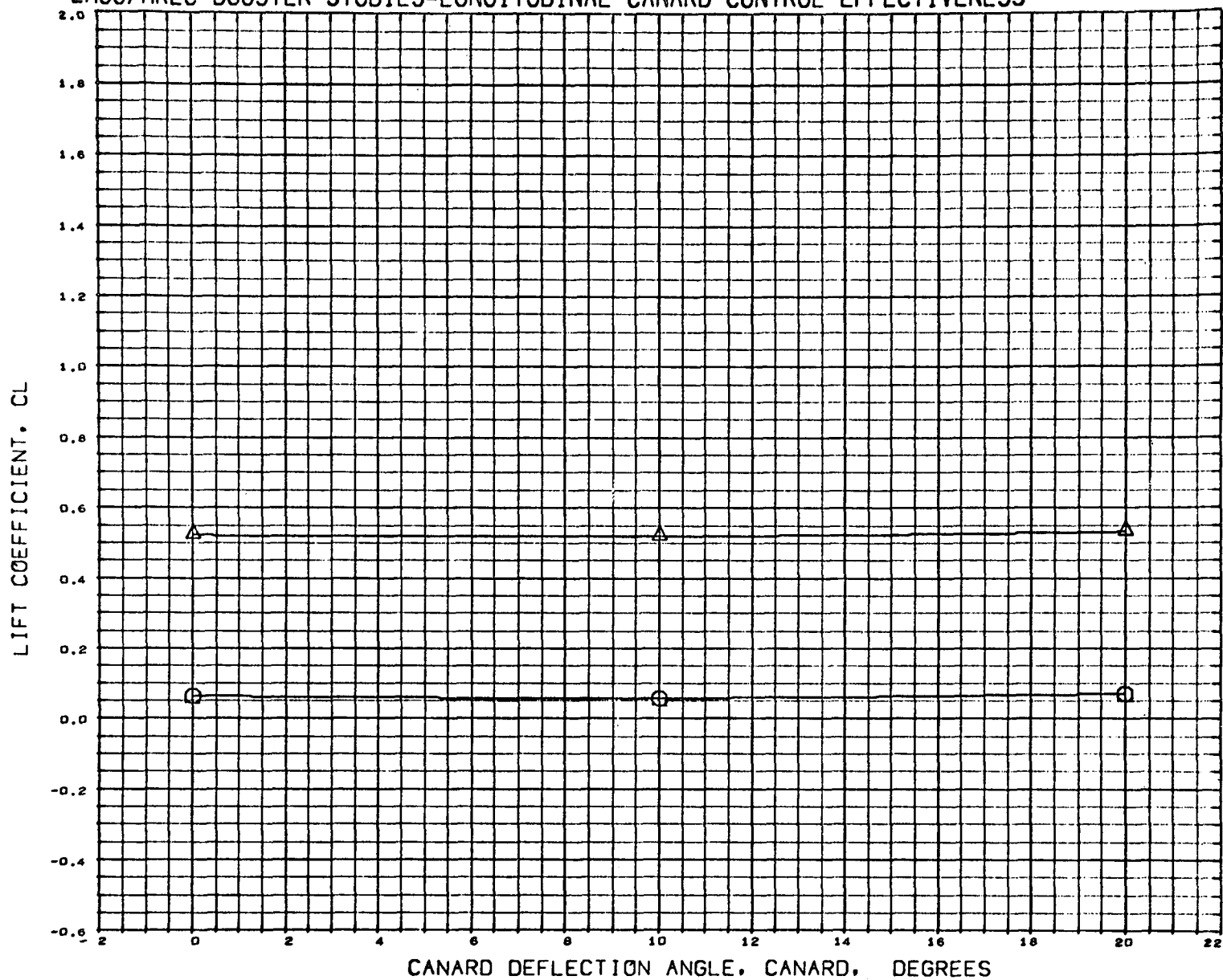
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CANARD CONTROL EFFECTIVENESS



CANARD DEFLECTION ANGLE, CANARD, DEGREES

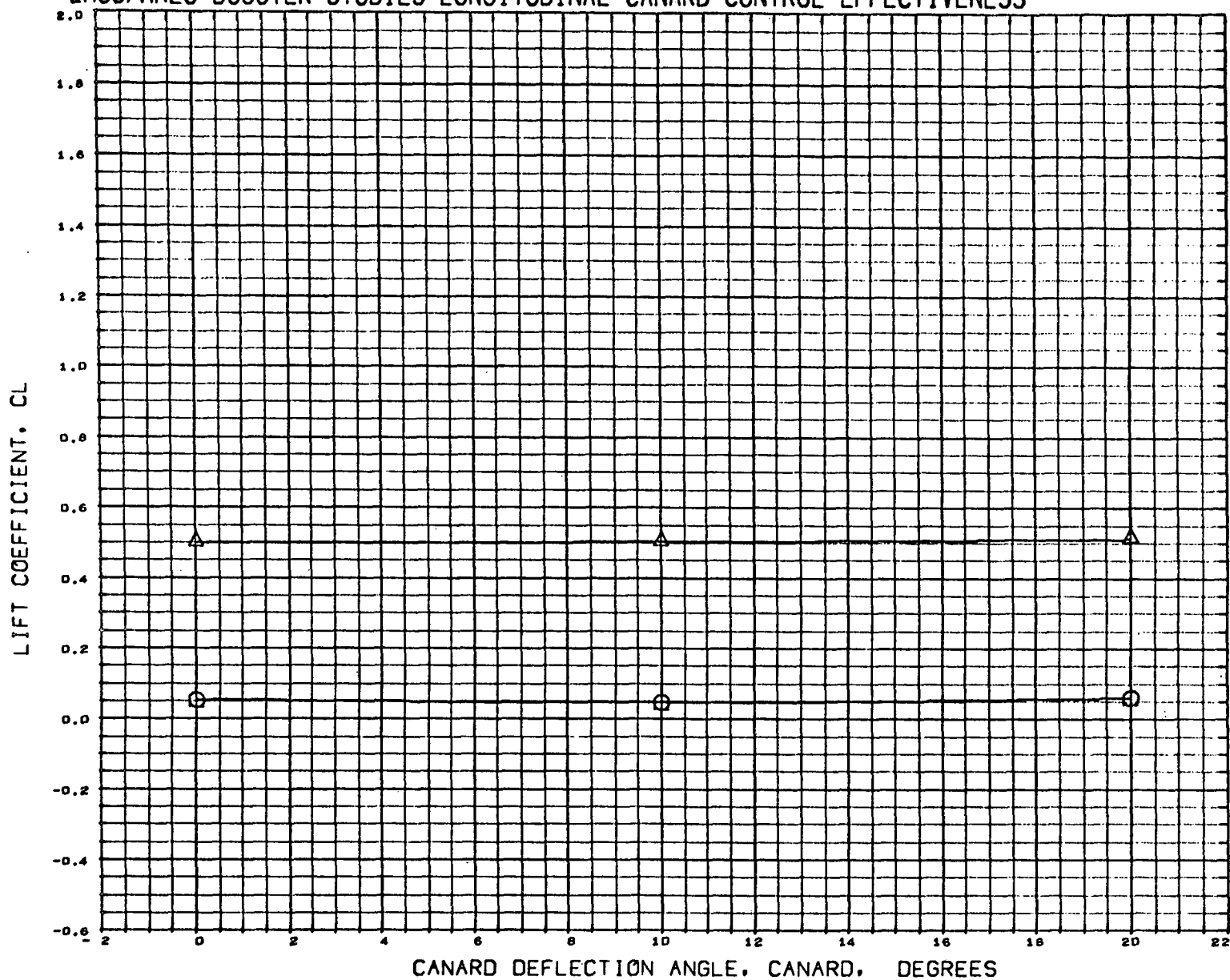
SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE			REFERENCE INFORMATION			
○	0.000	<u>MACH</u>	0.900	BETA	0.031	DATASET	CANARD	DATASET	CANARD	SREF	1.3550	SQ.FT.
△	6.000	INCIDC	3.000	INCIDW	0.000	NN3001	0.000	NN3021	10.000	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3033	20.000			BREF	3.4530	FEET
		ELEVTR	0.000	RUDDER	0.000					XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
										ZMRP	0.0187	FEET
										SCALE	0.0150	SCALE
		DATA HIST. CODE	I									

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CANARD CONTROL EFFECTIVENESS



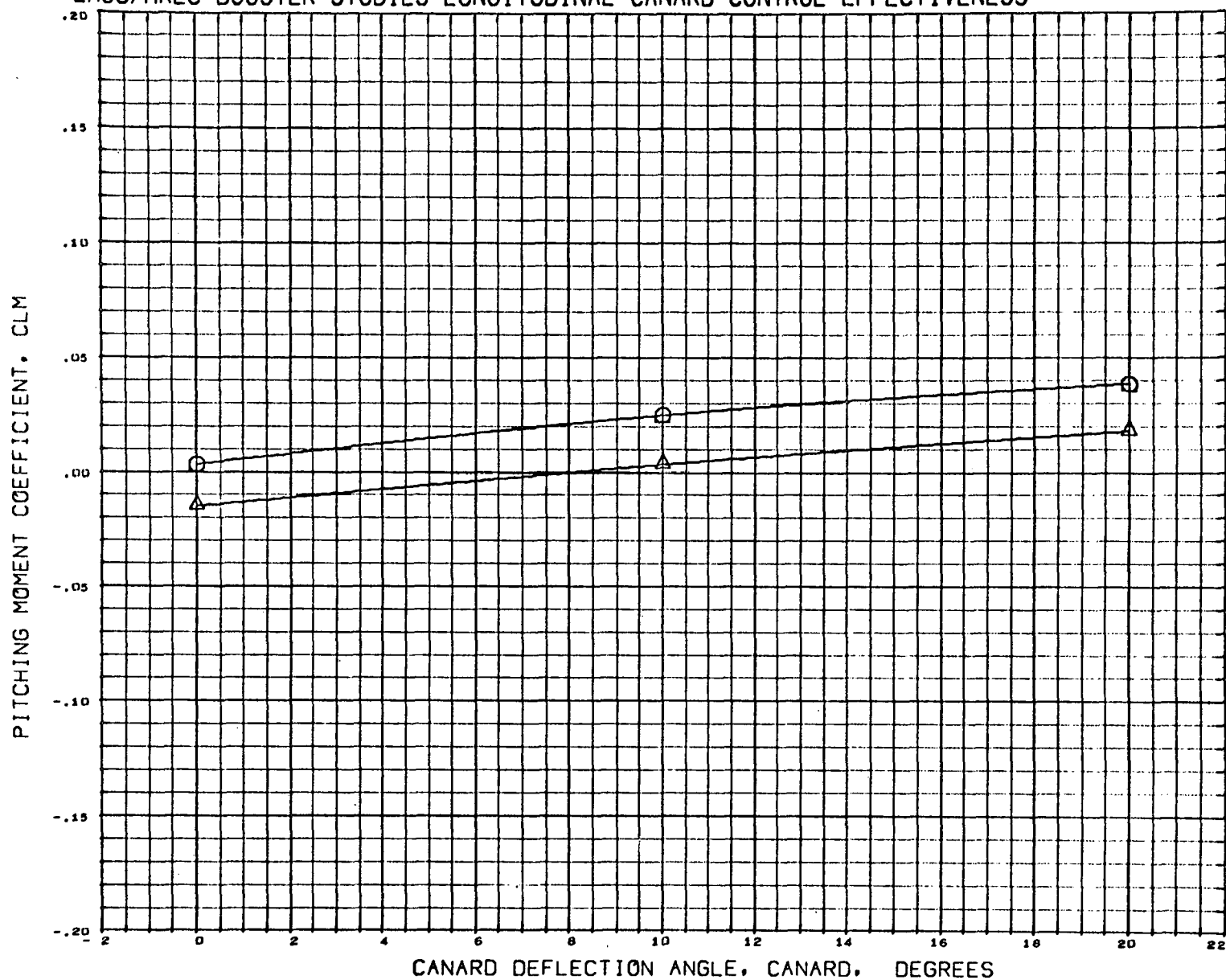
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O Δ	0.000	<u>MACH</u>	1.000	BETA	0.031	DATASET	CANARD		SREF	1.3550	30.FT.
	6.000	INCIDC	3.000	INCIDW	0.000	NN3001	0.000	NN3021	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3033	20.000		BREF	3.4530	FEET
		ELEVTR	0.000	RUDDER	0.000				XMRP	2.5950	FEET
		WNGPOS	1.000	CNDFOS	1.000				YMRP	0.0000	FEET
		DATA HIST. CODE	I						ZMRP	0.0187	FEET
									SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CANARD CONTROL EFFECTIVENESS



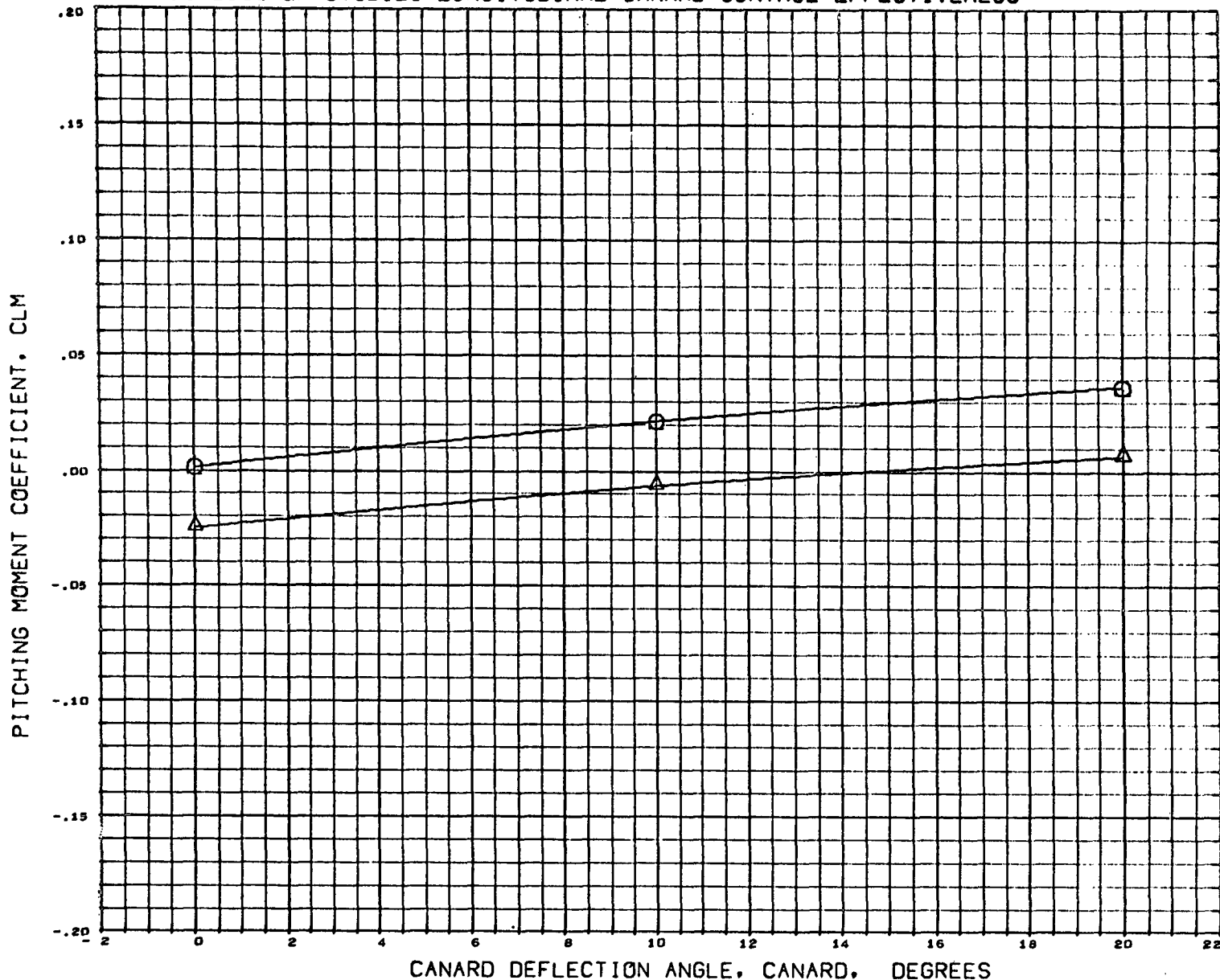
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△	6.000	INCIDC	3.000	INCIDW	0.000	NN3001	0.000	NN3021	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3033	20.000		BREF	3.4530	FEET
		ELEVTR	0.000	RUDDER	0.000				XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000				YMRP	0.0000	FEET
		DATA HIST. CODE	1						ZMRP	0.0187	FEET
									SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CANARD CONTROL EFFECTIVENESS



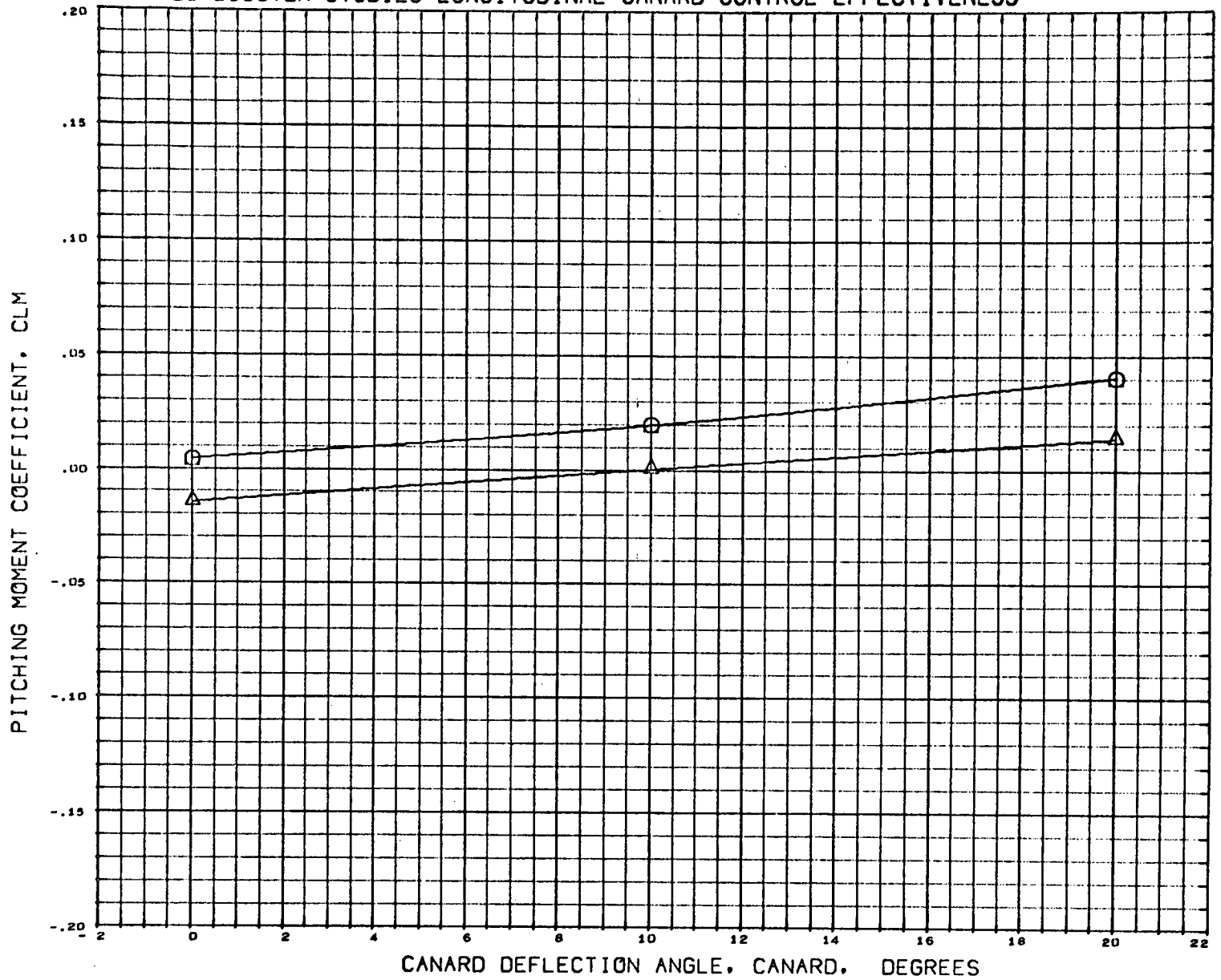
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O Δ	0.000	MACH	0.700	BETA	0.031	DATASET	CANARD	DATASET	CANARD	SREF	1.3550 SQ.FT.
	6.000	INCIDC	3.000	INCIDW	0.000	NN3001	0.000	NN3021	10.000	LREF	3.4530 FEET
		MSFLOW	0.000	AILRON	0.000	NN3033	20.000			BREF	3.4530 FEET
		ELEVTR	0.000	RUDDER	0.000					XMRP	2.5950 FEET
		WINGFOS	1.000	CNDPOS	1.000					YMRP	0.0000 FEET
										ZMRP	0.0187 FEET
										SCALE	0.0150 SCALE
		DATA HIST. CODE I									

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CANARD CONTROL EFFECTIVENESS



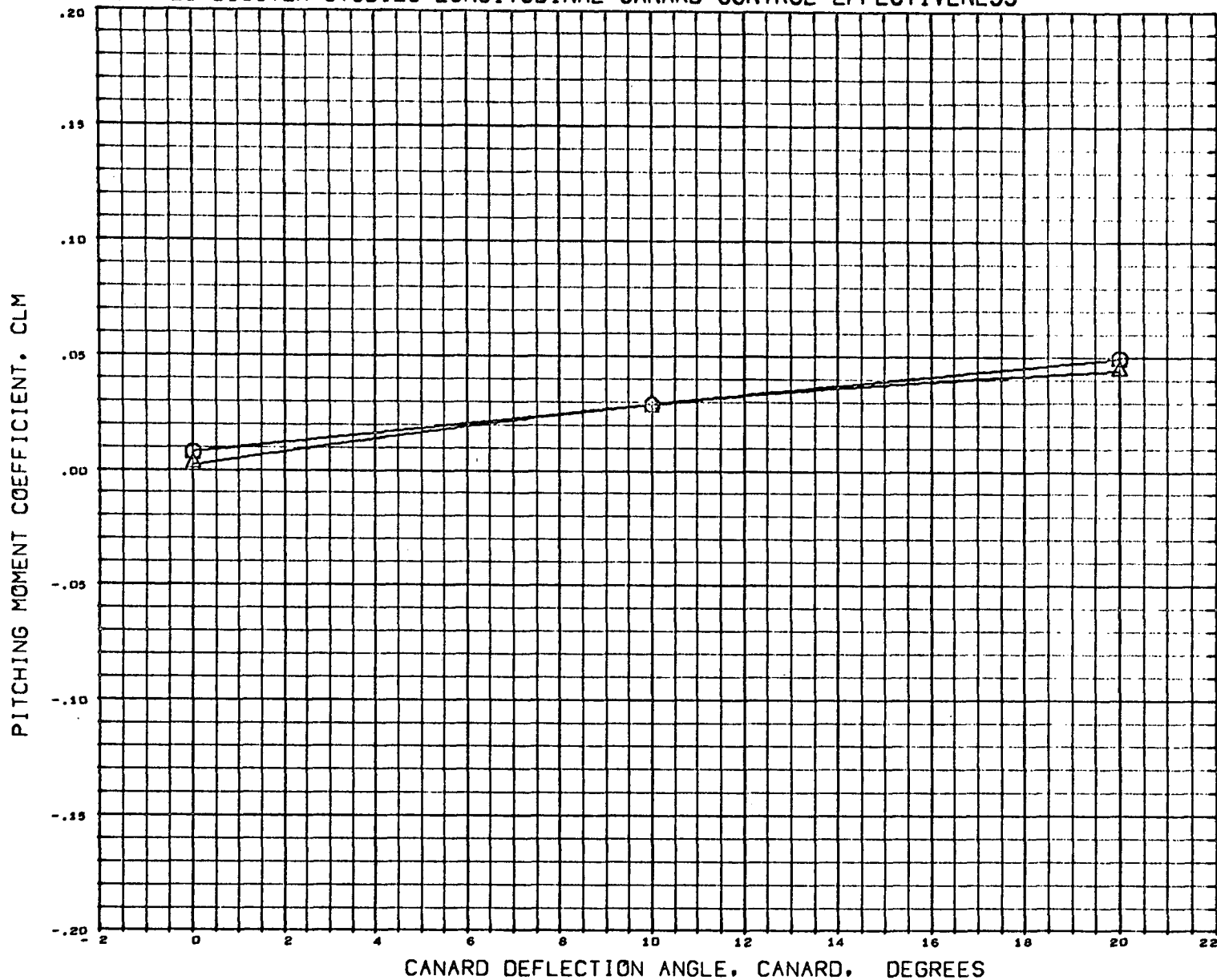
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O	0.000	<u>MACH</u>	0.800	BETA	0.031	DATASET	CANARD		SREF	1.3550	SQ.FT.
Δ	6.000	INCIDC	3.000	INCIDW	0.000	NN3001	0.000	NN3021	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3033	20.000		BREF	3.4530	FEET
		ELEVTR	0.000	RUDDER	0.000				XMRF	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000				YMRF	0.0000	FEET
									ZMRF	0.0187	FEET
									SCALE	0.0150	SCALE
		DATA HIST. CODE	1								

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CANARD CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE			REFERENCE INFORMATION			
O △	0.000	<u>MACH</u>	0.900	BETA	0.031	DATASET	CANARD	DATASET	CANARD	SRCF	1.3550	SQ.FT.
	6.000	INCIDC	3.000	INCIDW	0.000	NN3001	0.000	NN3021	10.000	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3033	20.000			BRCF	3.4530	FEET
		ELEVTR	0.000	RUDDER	0.000					XMRP	2.5950	FEET
		WNGFOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
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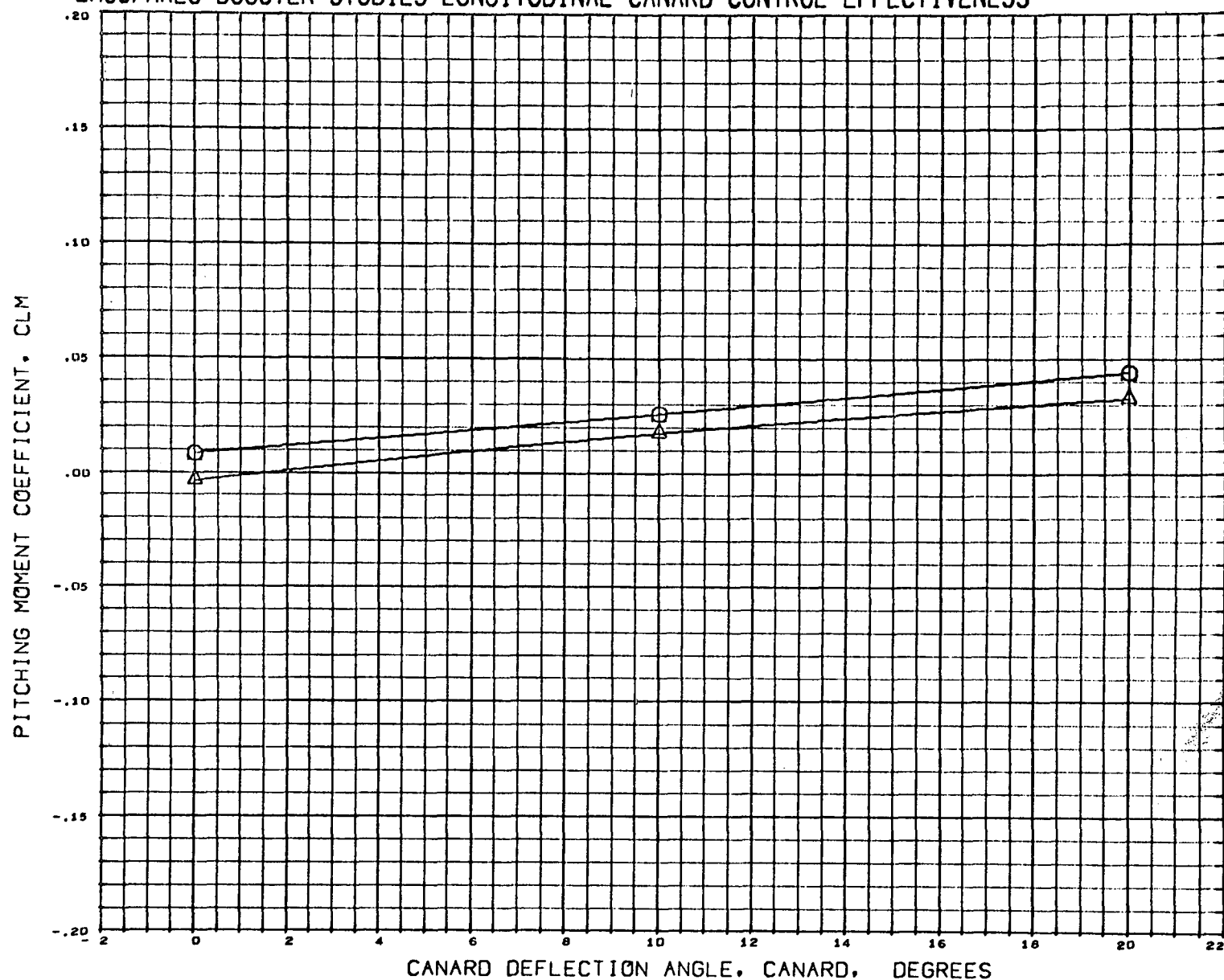
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CANARD CONTROL EFFECTIVENESS



CANARD DEFLECTION ANGLE, CANARD, DEGREES

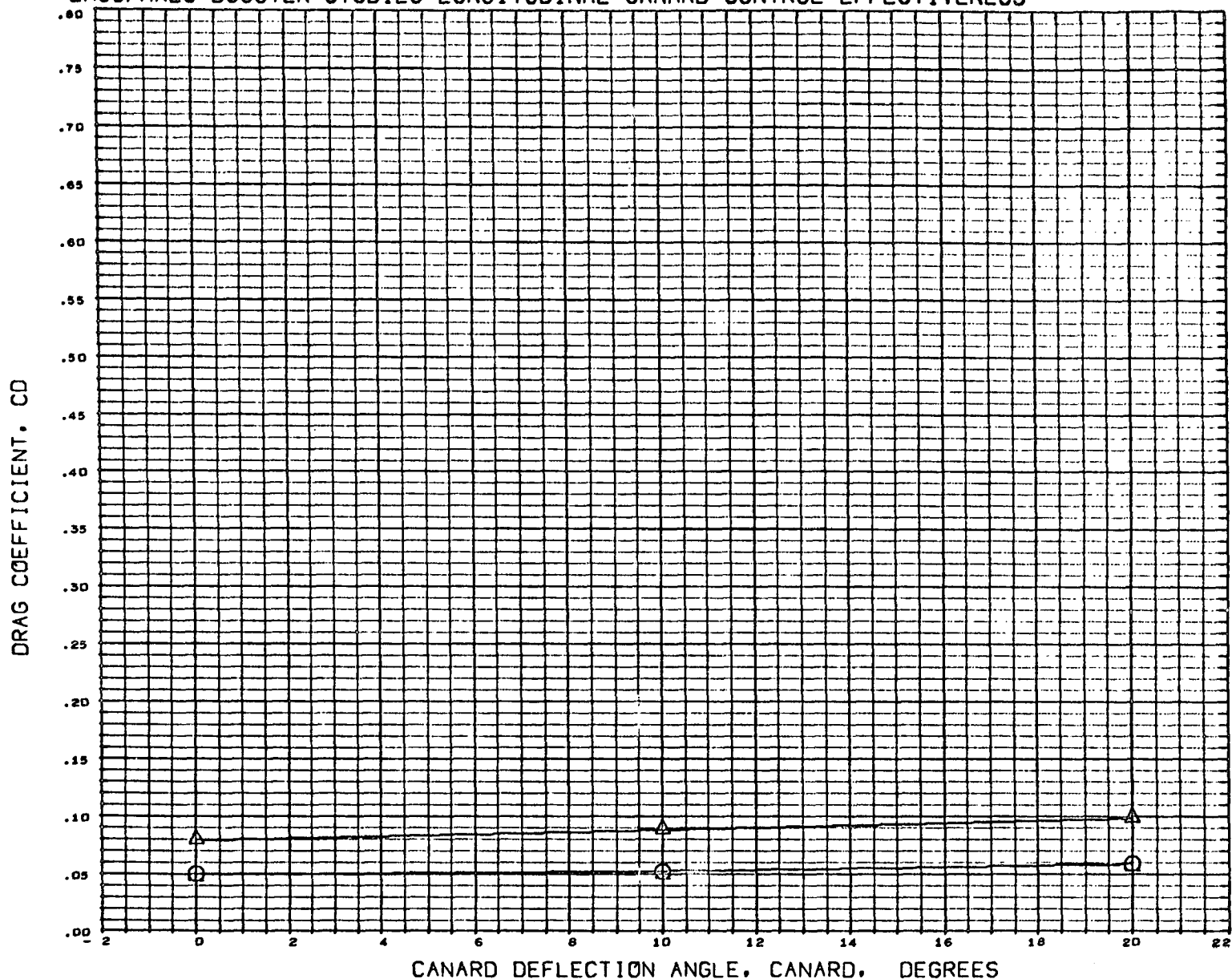
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	6.000	INCIDC	3.000	INCIDW	0.000	NN3001	0.000	NN3021	10.000	LREF	3.4530	FEET
		MSFLOW	0.000	ATLON	0.000	NN3033	20.000			BREF	3.4530	FEET
		ELEVTR	0.000	RUDDER	0.000					XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
										ZMRP	0.0187	FEET
										SCALE	0.0150	SCALE
		DATA HIST. CODE I										

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CANARD CONTROL EFFECTIVENESS



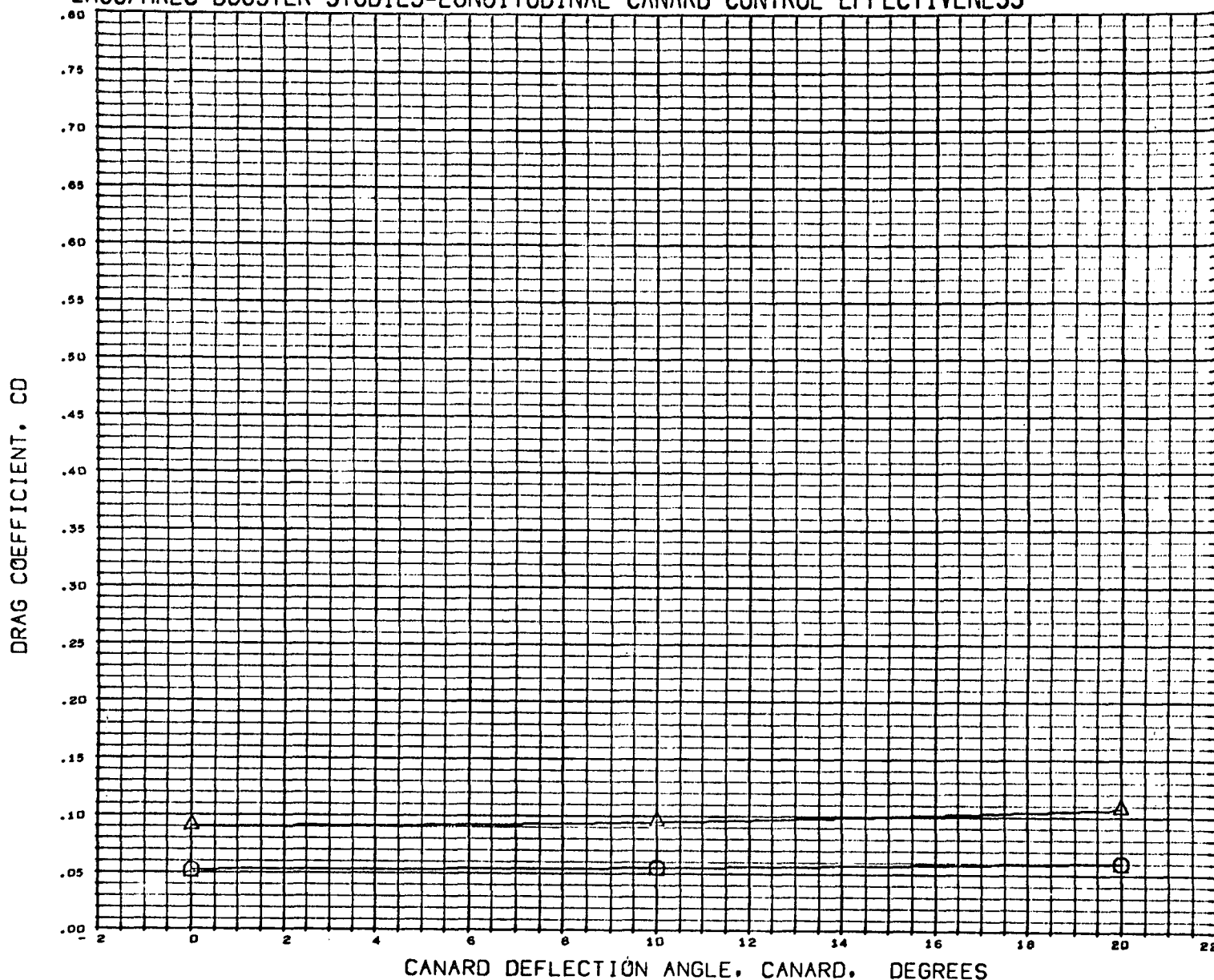
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△	6.000	INCIDC	3.000	INCIDW	0.000	NN3001	0.000	NN3021	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3033	20.000		BREF	3.4530	FEET
		ELEVTR	0.000	RUDDER	0.000				XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000				YMRP	0.0000	FEET
		DATA HIST. CODE	I						ZMRP	0.0187	FEET
									SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CANARD CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE			REFERENCE INFORMATION		
O	0.000	MACH	0.700	BETA	0.031	DATASET	CANARD		SREF	1.3550	SQ.FT.
Δ	6.000	INCIDC	3.000	INCIDW	0.000	NN3001	0.000	NN3021	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3033	20.000		BREF	3.4530	FEET
		ELEVTR	0.000	RUDDER	0.000				XMRP	2.5950	FEET
		WNGPOS	1.000	CNGPOS	1.000				YMRP	0.0000	FEET
									ZMRP	0.0187	FEET
									SCALE	0.0150	SCALE
		DATA HIST. CODE	I								

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CANARD CONTROL EFFECTIVENESS



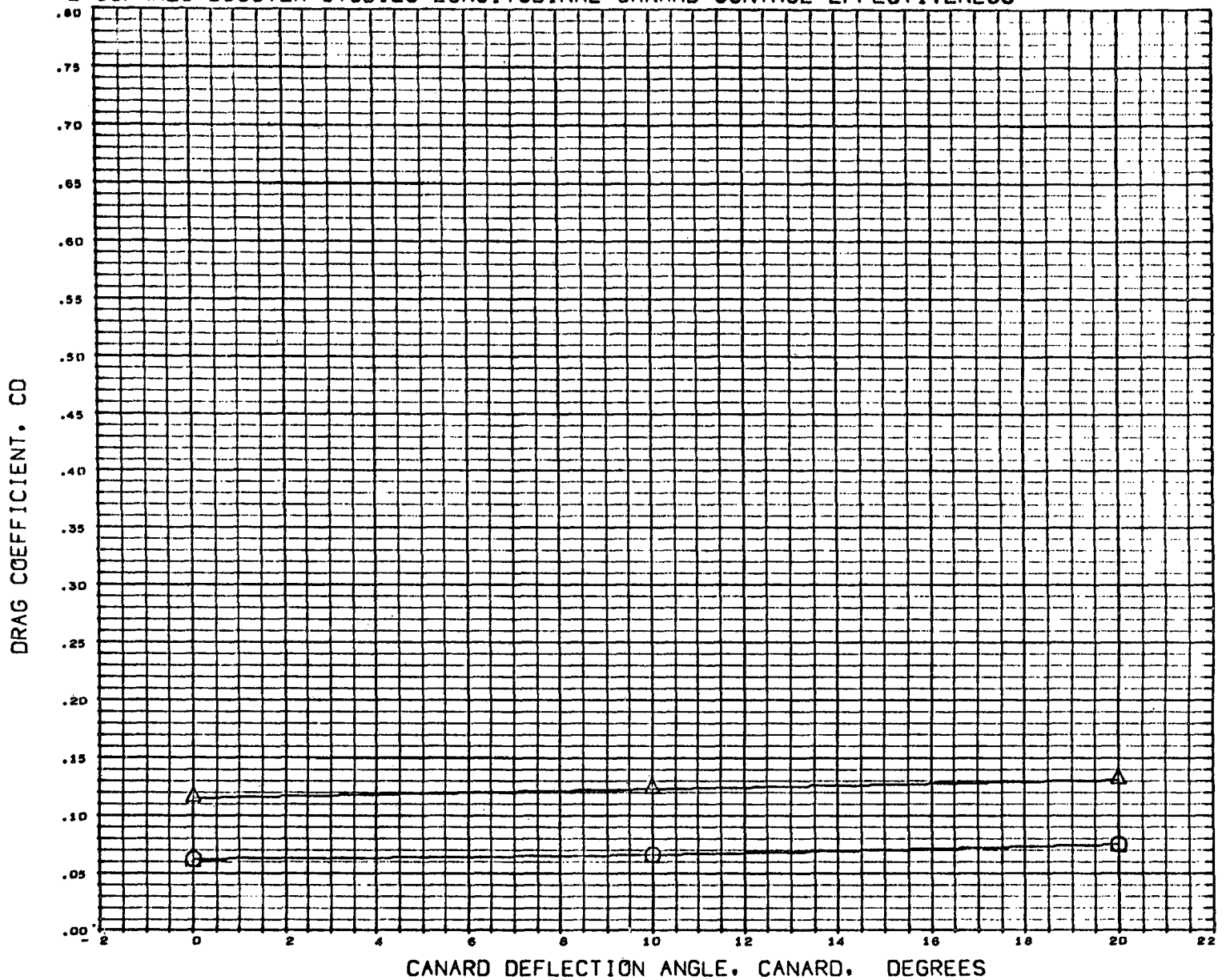
SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE			REFERENCE INFORMATION		
O Δ	0.000	MACH	0.800	BETA	0.031	DATASET	CANARD		SREF	1.3550	SQ.FT.
	6.000	INCIDC	3.000	INCIDW	0.000	NN3001	0.000	NN3021	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3033	20.000		BREF	3.4530	FEET
		ELEVTR	0.000	RUDDER	0.000				XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000				YMRP	0.0000	FEET
									ZMRP	0.0187	FEET
									SCALE	0.0150	SCALE
		DATA HIST. CODE 1									

NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1

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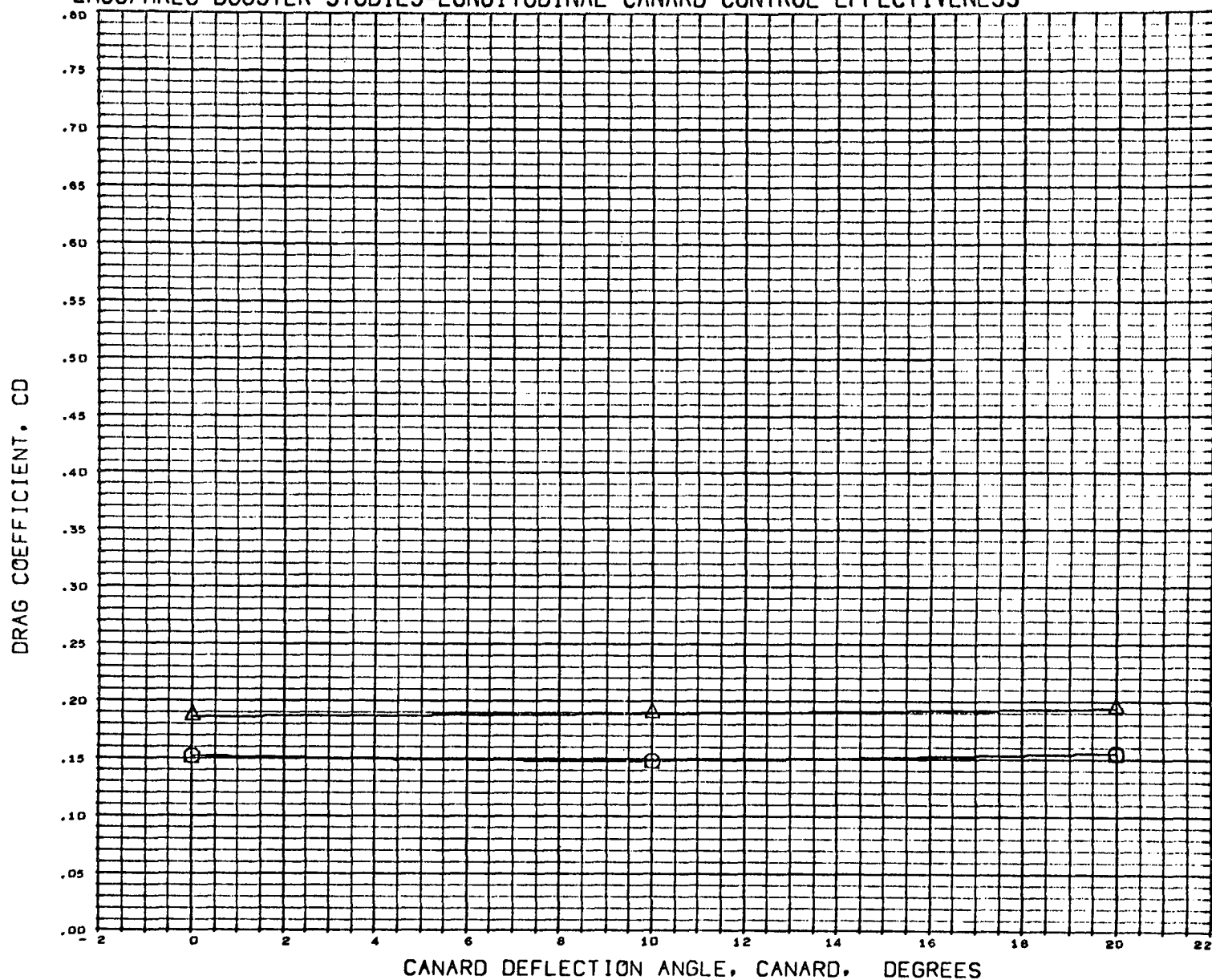
4

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CANARD CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE			REFERENCE INFORMATION		
O	0.000	MACH	0.900	BETA	0.031	DATASET	CANARD		SREF	1.3550	80.FT.
	6.000	INCIDC	3.000	INCIDW	0.000	NN3001	0.000	NN3021	LREF	3.4530	FEET
Δ		MSFLOW	0.000	AILRON	0.000	NN3033	20.000		BREF	3.4530	FEET
		ELEVTR	0.000	RUDDER	0.000				XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000				YMRP	0.0000	FEET
									ZMRP	0.0187	FEET
									SCALE	0.0150	SCALE
		DATA HIST. CODE I									

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CANARD CONTROL EFFECTIVENESS



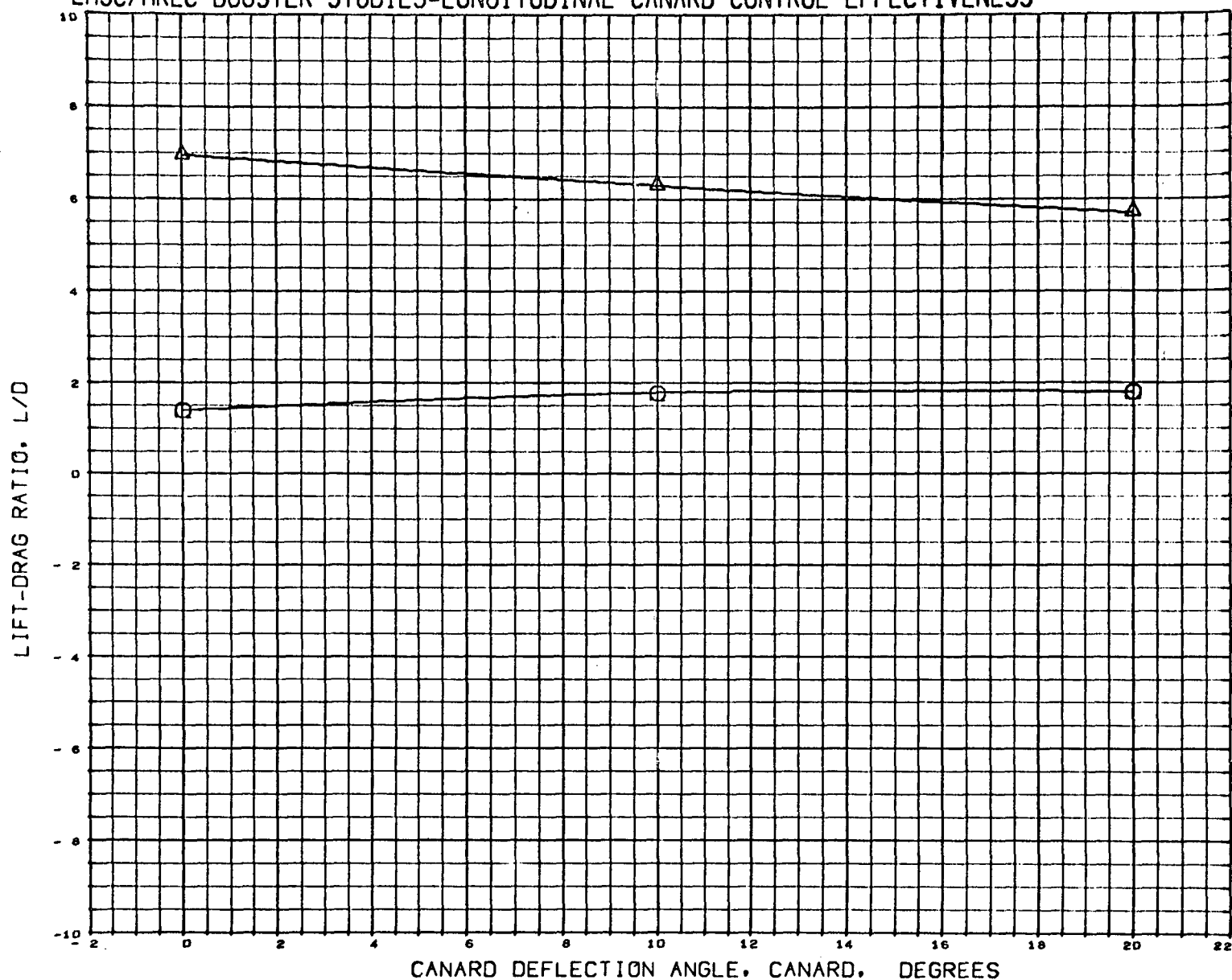
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O	0.000	MACH	1.000	BETA	0.031	DATASET	CANARD		SREF	1.3550	SQ. FT.
	6.000	INCIDC	3.000	INCIDW	0.000	NN3001	0.000	NN3021	LREF	3.4530	FEET
Δ		MSFLOW	0.000	AILRON	0.000	NN3033	20.000		BREF	3.4530	FEET
		ELEVTR	0.000	RUDDER	0.000				XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000				YMRP	0.0000	FEET
									ZMRP	0.0187	FEET
									SCALE	0.0150	SCALE
		DATA HIST. CODE I									

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CANARD CONTROL EFFECTIVENESS



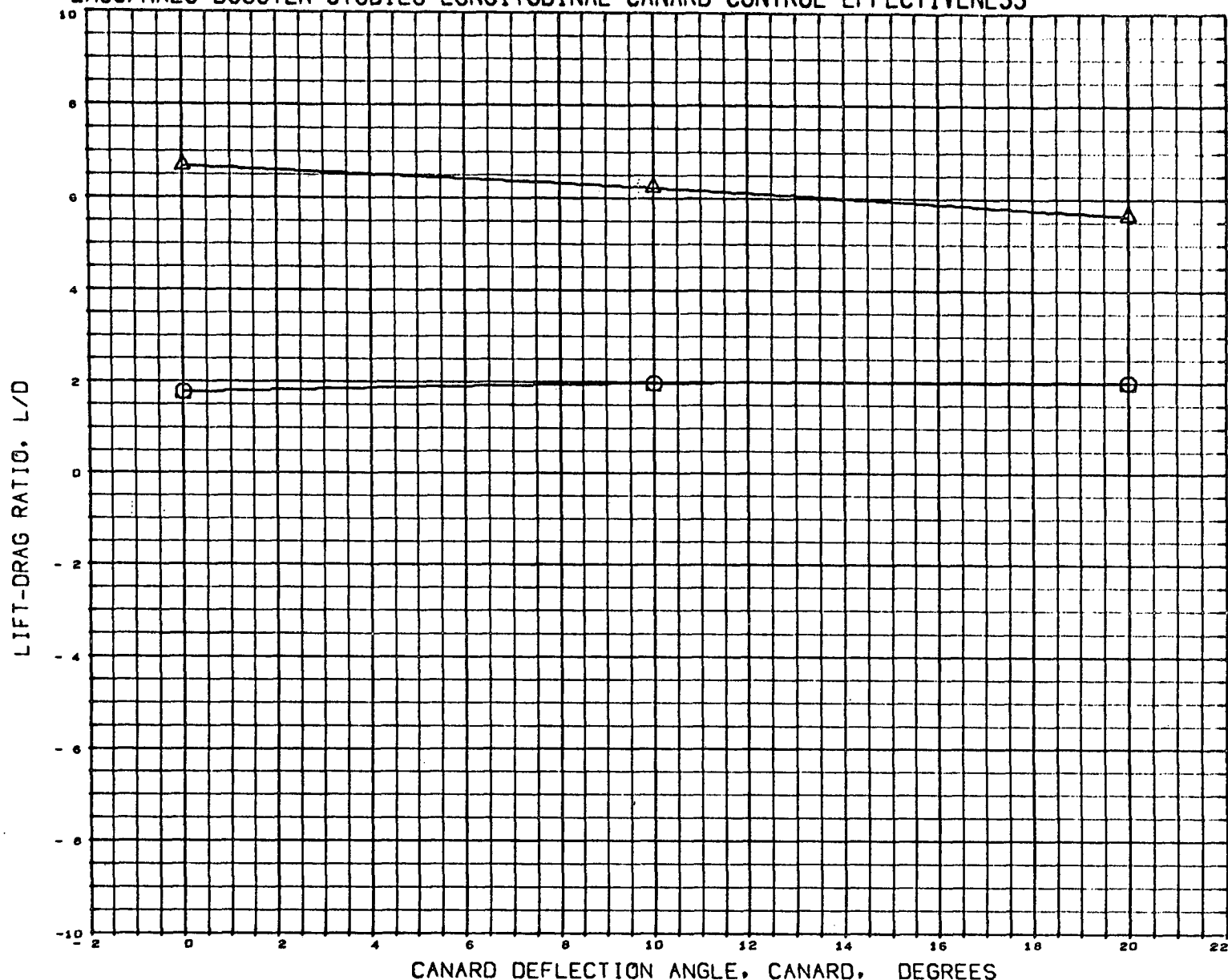
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O Δ	0.000	MACH	1.125	BETA	0.031	DATASET	CANARD	DATASET	CANARD	SREF	1.3550	SQ.FT.
	6.000	INCIDC	3.000	INCIDW	0.000	NN3001	0.000	NN3021	10.000	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3033	20.000			BREF	3.4530	FEET
		ELEVTR	0.000	RUDDER	0.000					XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
										ZMRP	0.0187	FEET
										SCALE	0.0150	SCALE
		DATA HIST. CODE 1										

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CANARD CONTROL EFFECTIVENESS



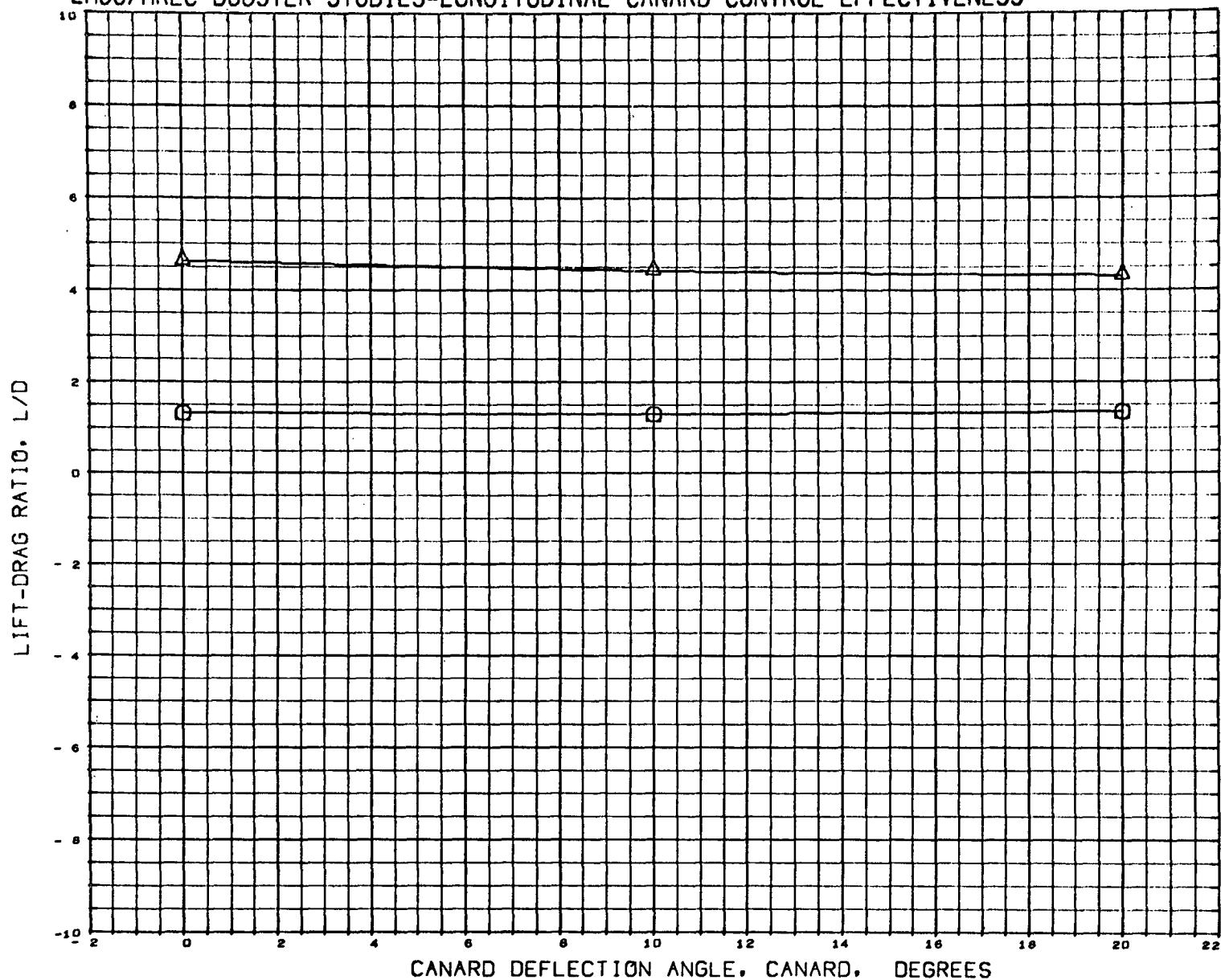
SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE			REFERENCE INFORMATION			
O Δ	0.000	<u>MACH</u>	0.700	BETA	0.031	DATASET	CANARD	DATASET	CANARD	SREF	1.3550	30.FT.
	6.000	INCIDC	3.000	INCIDW	0.000	NN3001	0.000	NN3021	10.000	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3033	20.000			BREF	3.4530	FEET
		ELEVTR	0.000	RUDDER	0.000					XMRP	2.5950	FEET
		ELEVTR	0.000	RUDDER	0.000					YMRP	0.0000	FEET
		WNGPOS	1.000	CNDPOS	1.000					ZMRP	0.0107	FEET
		WNGPOS	1.000	CNDPOS	1.000					SCALE	0.0150	SCALE
	DATA HIST. CODE I											

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CANARD CONTROL EFFECTIVENESS



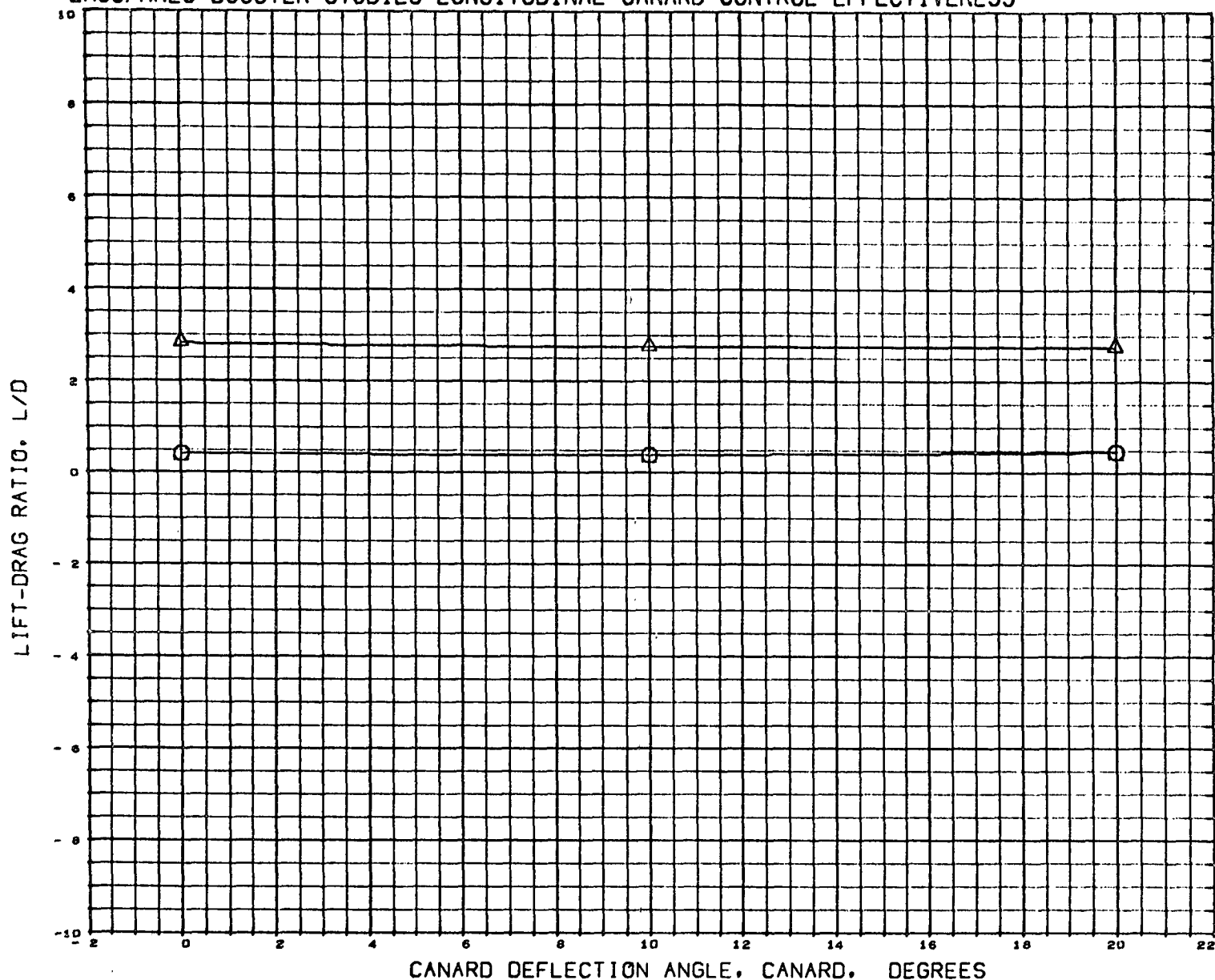
SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE			REFERENCE INFORMATION		
○	0.000	<u>MACH</u>	0.800	BETA	0.031	DATASET	CANARD		SREF	1.3550	SQ.FT.
△	6.000	INCIDC	3.000	INCIDW	0.000	NN3001	0.000	NN3021	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3033	20.000		BREF	3.4530	FEET
		ELEVTR	0.000	RUDDER	0.000				XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000				YMRP	0.0000	FEET
									ZMRP	0.0187	FEET
									SCALE	0.0150	SCALE
		DATA HIST. CODE I									

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CANARD CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE			REFERENCE INFORMATION		
<div> <div></div> <div></div> </div>	0.000	<u>MACH</u>	0.900	BETA	0.031	DATASET	CANARD		SREF	1.3550	99.FT.
	6.000	INCIDC	3.000	INCIDW	0.000	NN3001	0.000	NN3021	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3033	20.000		BREF	3.4530	FEET
		ELEVTR	0.000	RUDDER	0.000				XMRP	2.5950	FEET
		WNGPOS	1.000	CNDFOS	1.000				YMRP	0.0000	FEET
		DATA HIST. CODE	1						ZMRP	0.0187	FEET
									SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CANARD CONTROL EFFECTIVENESS



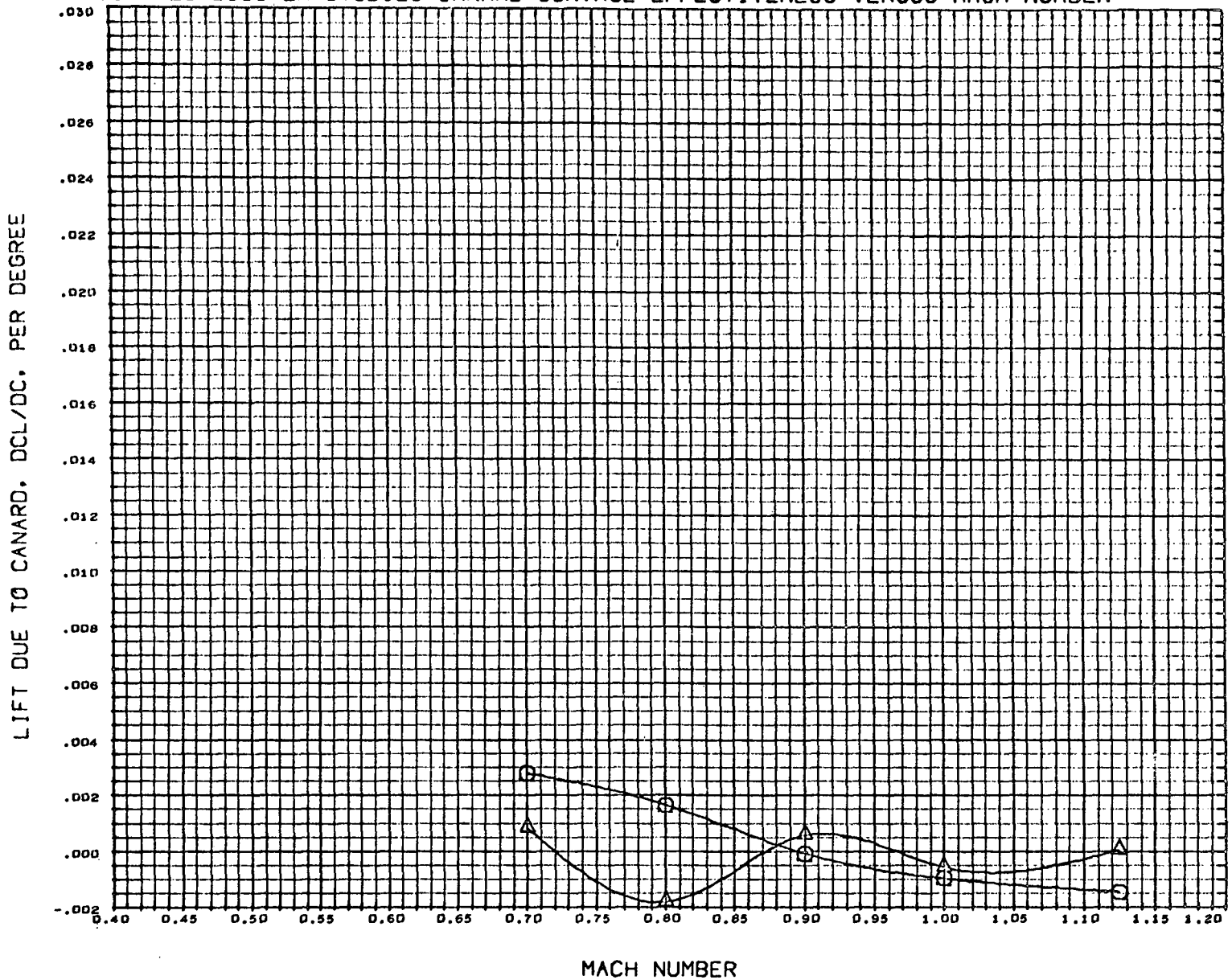
SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE			REFERENCE INFORMATION			
○	0.000	<u>MACH</u>	1.000	BETA	0.031	DATASET	CANARD	DATASET	CANARD	SREF	1.3550	SQ.FT.
△	6.000	INCIDC	3.000	INCIDW	0.000	NN3001	0.000	NN3021	10.000	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3033	20.000			BREF	3.4530	FEET
		ELEVTR	0.000	RUDDER	0.000					XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
										ZMRP	0.0187	FEET
										SCALE	0.0150	SCALE
		DATA HIST. CODE 1										

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CANARD CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE			REFERENCE INFORMATION		
○	0.000	MACH	1.125	BETA	0.031	DATASET	CANARD		SREF	1.3550	SQ.FT.
△	6.000	INCIDC	3.000	INCIDW	0.000	NN3001	0.000	NN3021	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3033	20.000		BREF	3.4530	FEET
		ELEVTR	0.000	RUDDER	0.000				XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000				YMRP	0.0000	FEET
		DATA HIST. CODE	I						ZMRP	0.0187	FEET
									SCALE	0.0150	SCALE

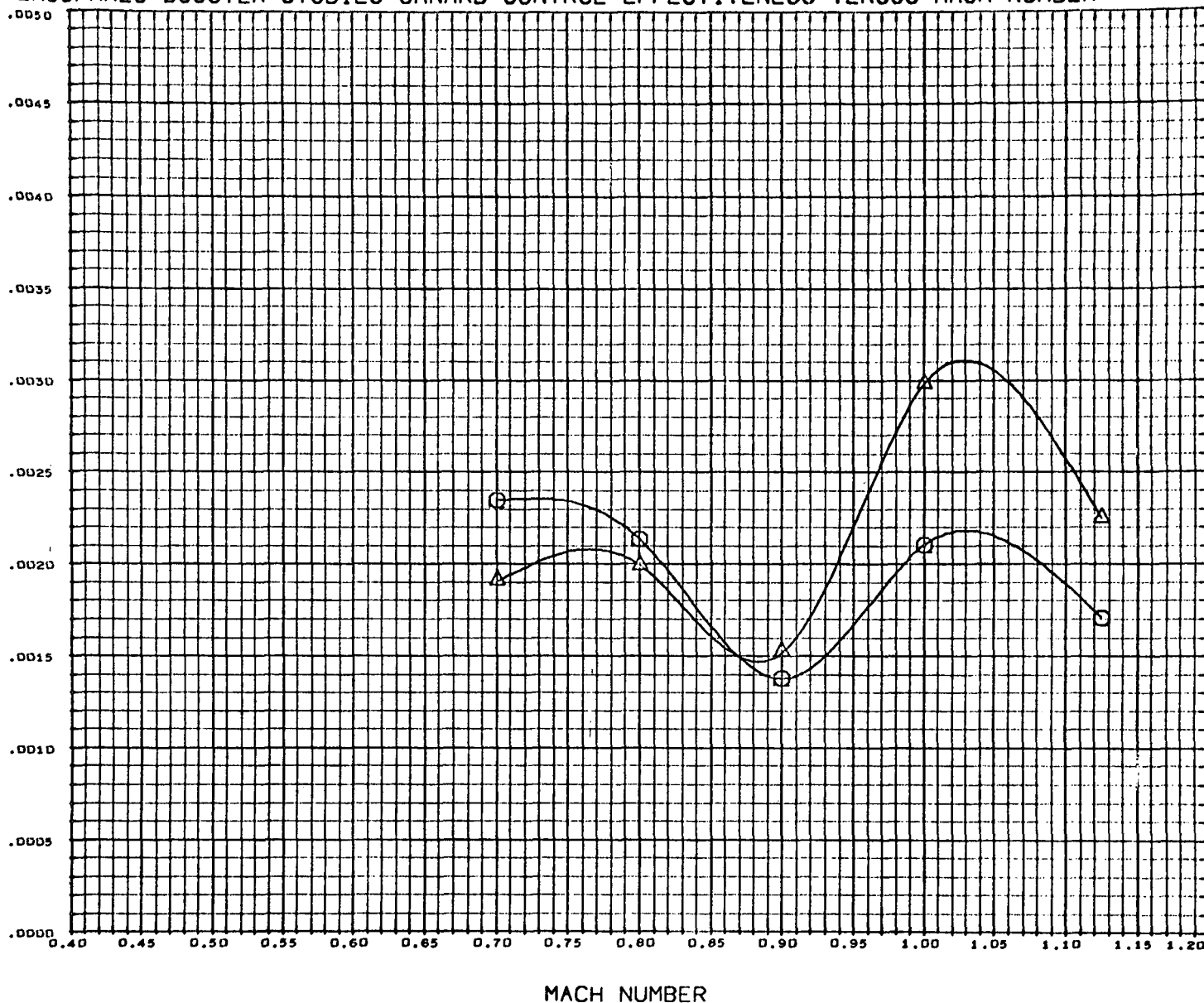
LMSC/HREC BOOSTER STUDIES-CANARD CONTROL EFFECTIVENESS VERSUS MACH NUMBER



SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION	
O Δ	0.000	INCIDC	3.000	INCIDW	0.000	SREF	1.3550 SQ. FT.
	6.000	MSFLOW	0.000	AILRON	0.000	LREF	3.4530 FEET
		CANARD	0.000	ELEVTR	0.000	BREF	3.4530 FEET
		RUDDER	0.000	WNGPOS	1.000	XMRP	2.5950 FEET
		CNDPOS	1.000			YMRP	0.0000 FEET
		DATA HIST. CODE	I#P			ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

LMSC/HREC BOOSTER STUDIES-CANARD CONTROL EFFECTIVENESS VERSUS MACH NUMBER

PITCHING MOMENT DUE TO CANARD, DCLMDC, PER DEGREE

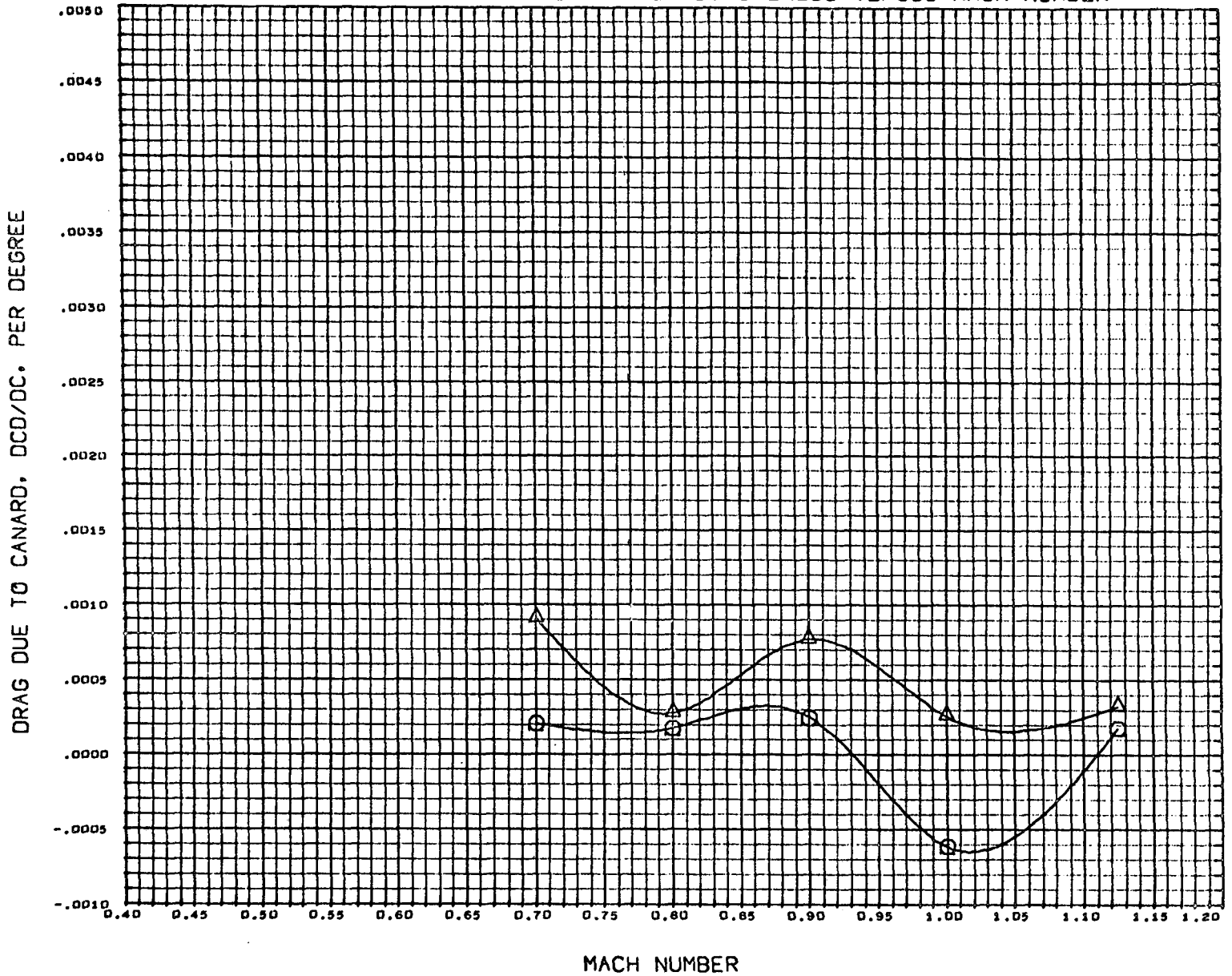


SYMBOL ALPHA
 O 0.000
 Δ 6.000

PARAMETRIC VALUES
 INCIDC 3.000 INCIDW 0.000
 MSFLOW 0.000 AILRON 0.000
 CANARD 0.000 ELEVTR 0.000
 RUDDER 0.000 WNGPOS 1.000
 CNDPOS 1.000
 DATA HIST. CODE I*F

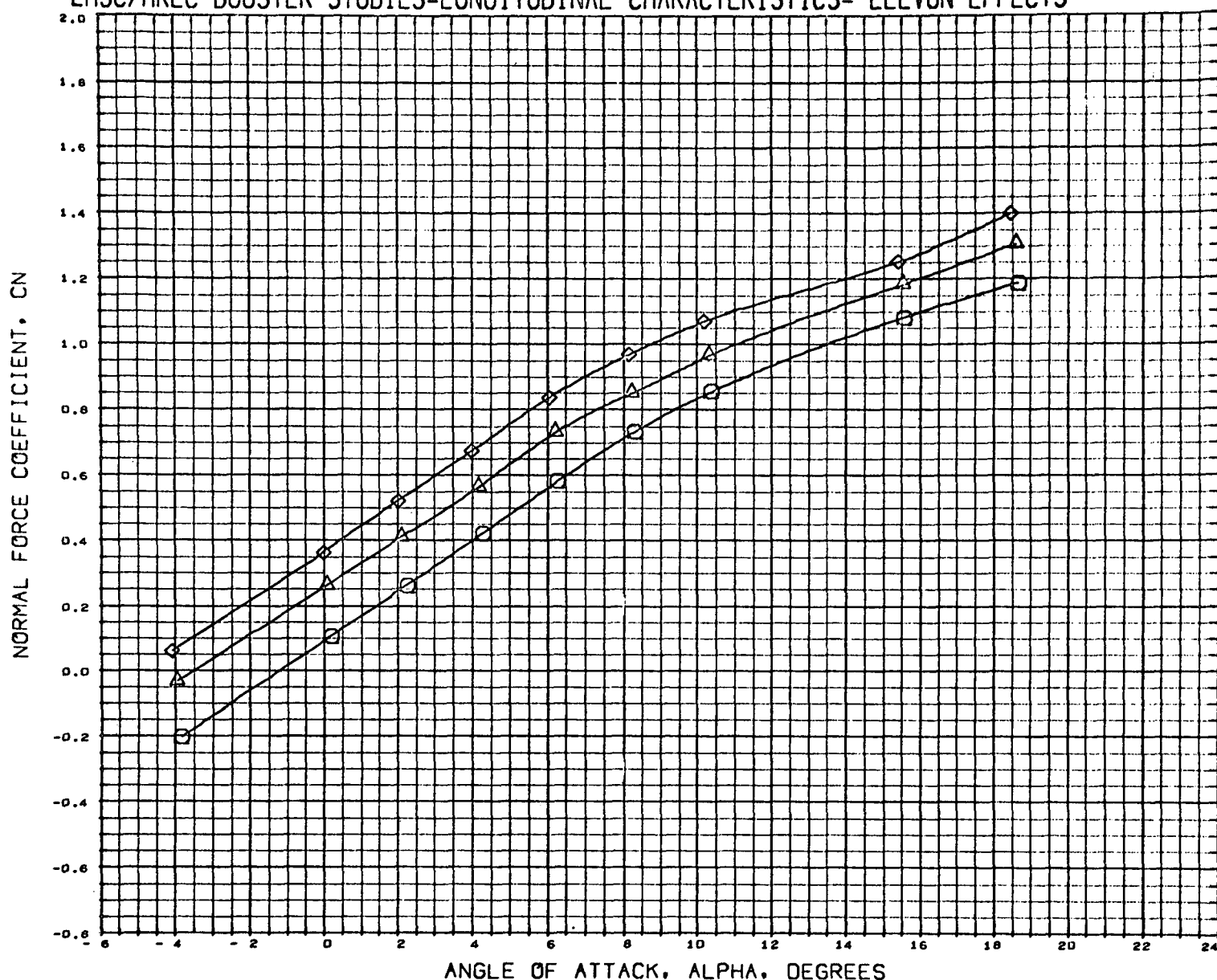
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 LREF 3.4530 FEET
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 XMRP 2.5950 FEET
 YMRP 0.0000 FEET
 ZMRP 0.0187 FEET
 SCALE 0.0150 SCALE

LMSC/HREC BOOSTER STUDIES-CANARD CONTROL EFFECTIVENESS VERSUS MACH NUMBER



SYMBOL		PARAMETRIC VALUES				REFERENCE INFORMATION		
O	0.000	INCIDC	3.000	INCIDW	0.000	SREF	1.3550	SQ. FT.
	6.000	MSFLOW	0.000	AILRON	0.000	LREF	3.4530	FEET
Δ		CANARD	0.000	ELEVTR	0.000	BREF	3.4530	FEET
		RUDDER	0.000	WNGFOS	1.000	XMRP	2.5950	FEET
		CNCFOS	1.000			YMRP	0.0000	FEET
		DATA HIST. CODE	14P			ZMRP	0.0187	FEET
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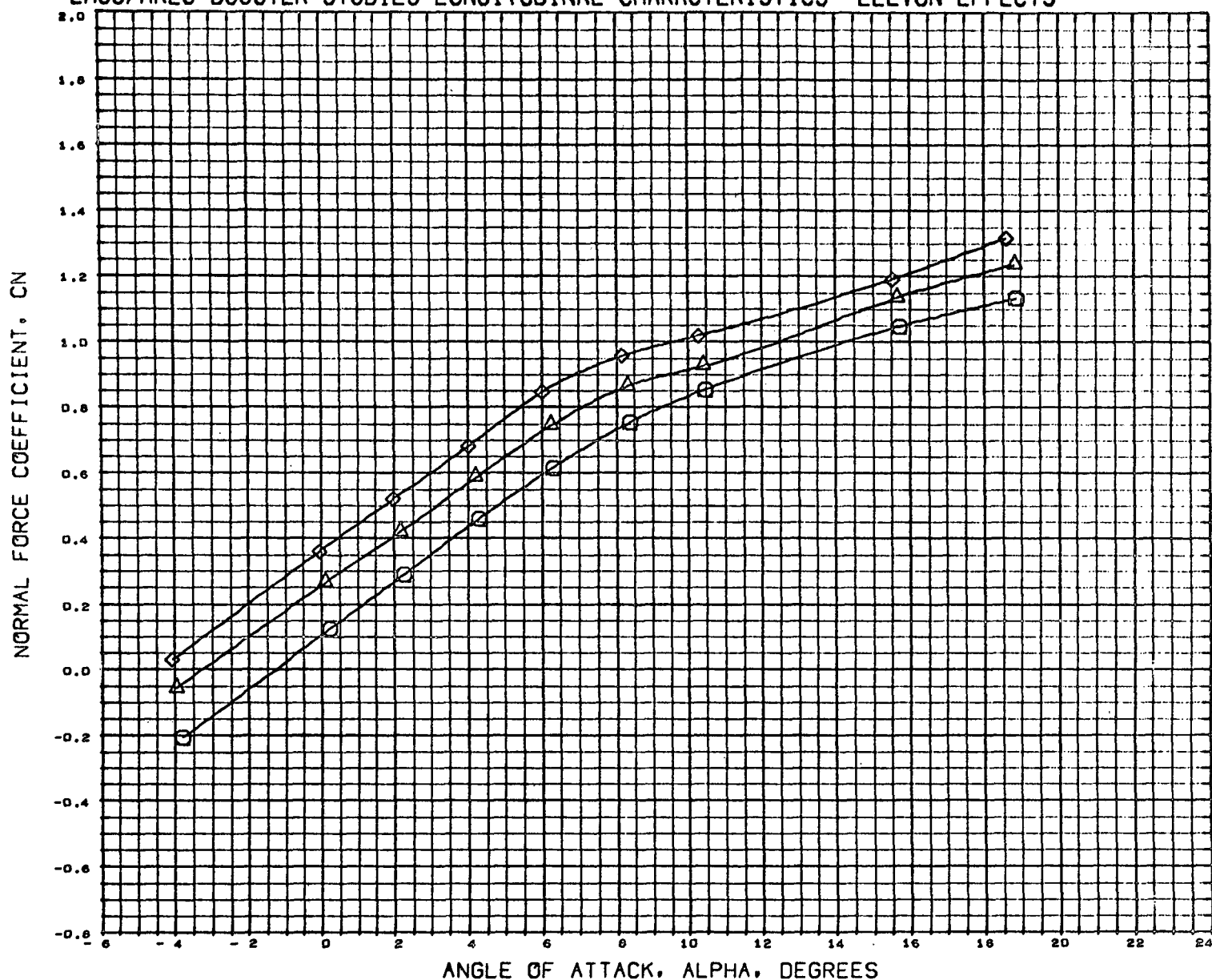
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 SQ.FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.704

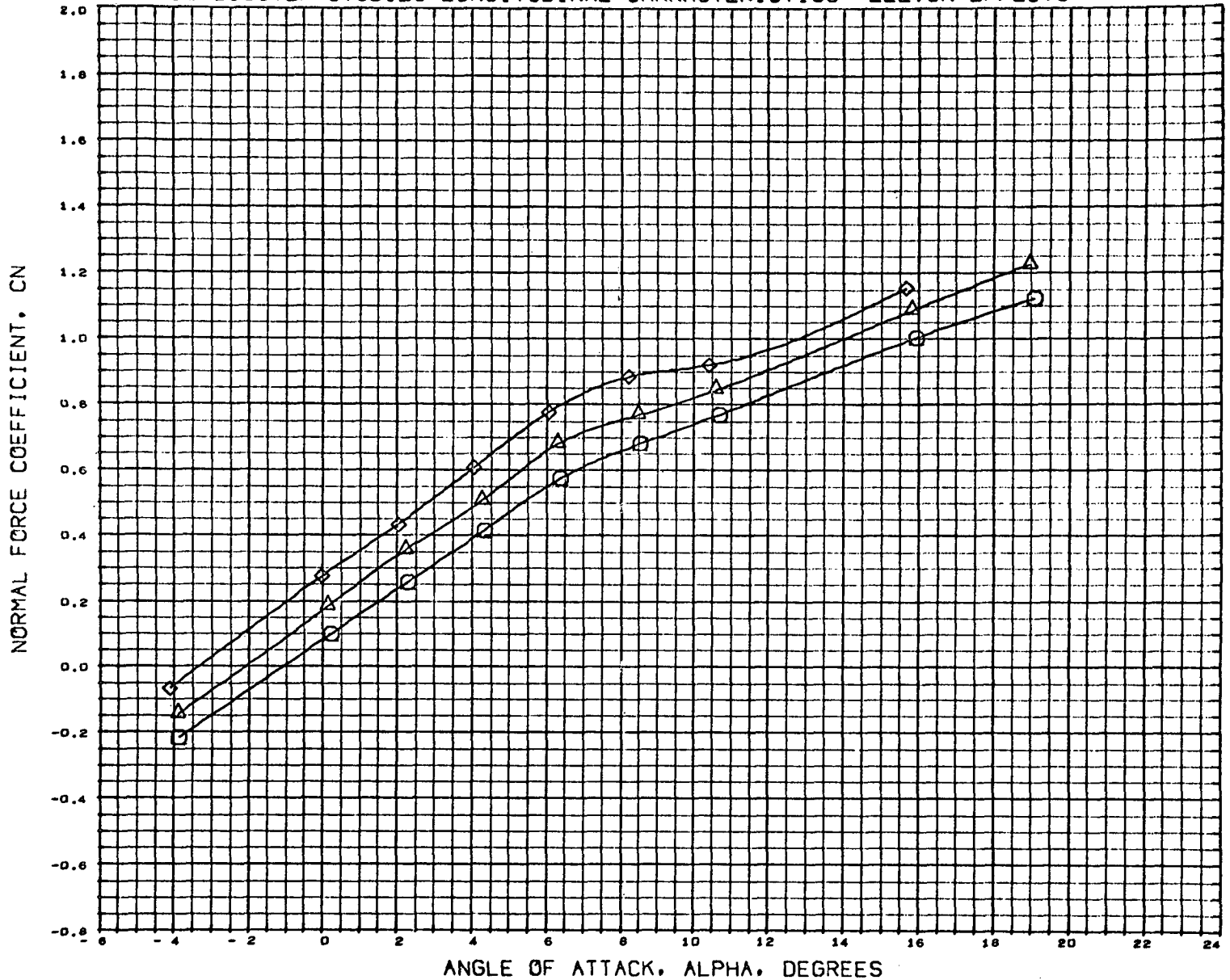
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 SQ.FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LRCP	3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BRFP	3.4530 FEET
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						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.802

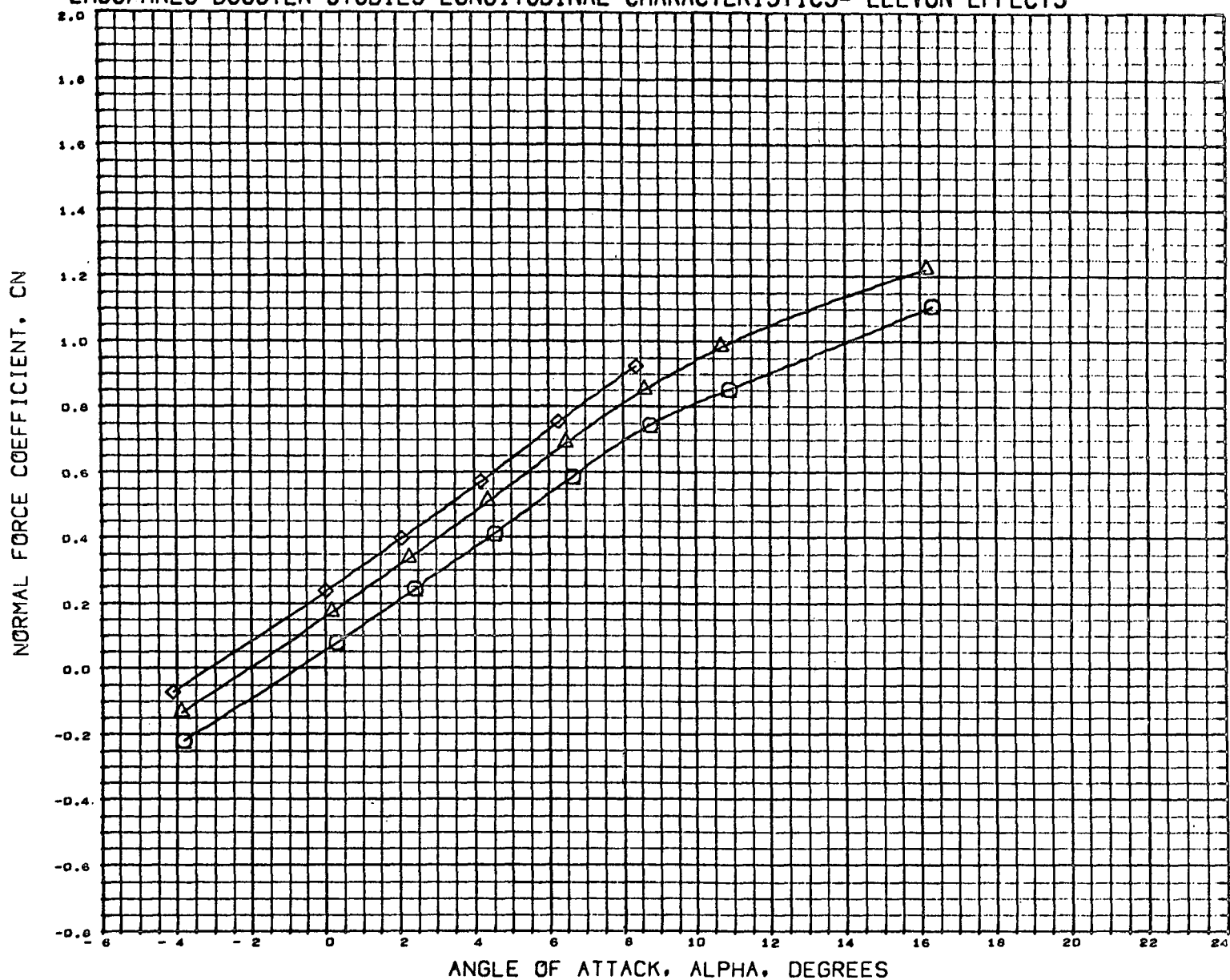
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 SQ. FT.
(RN3025)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3029)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.901

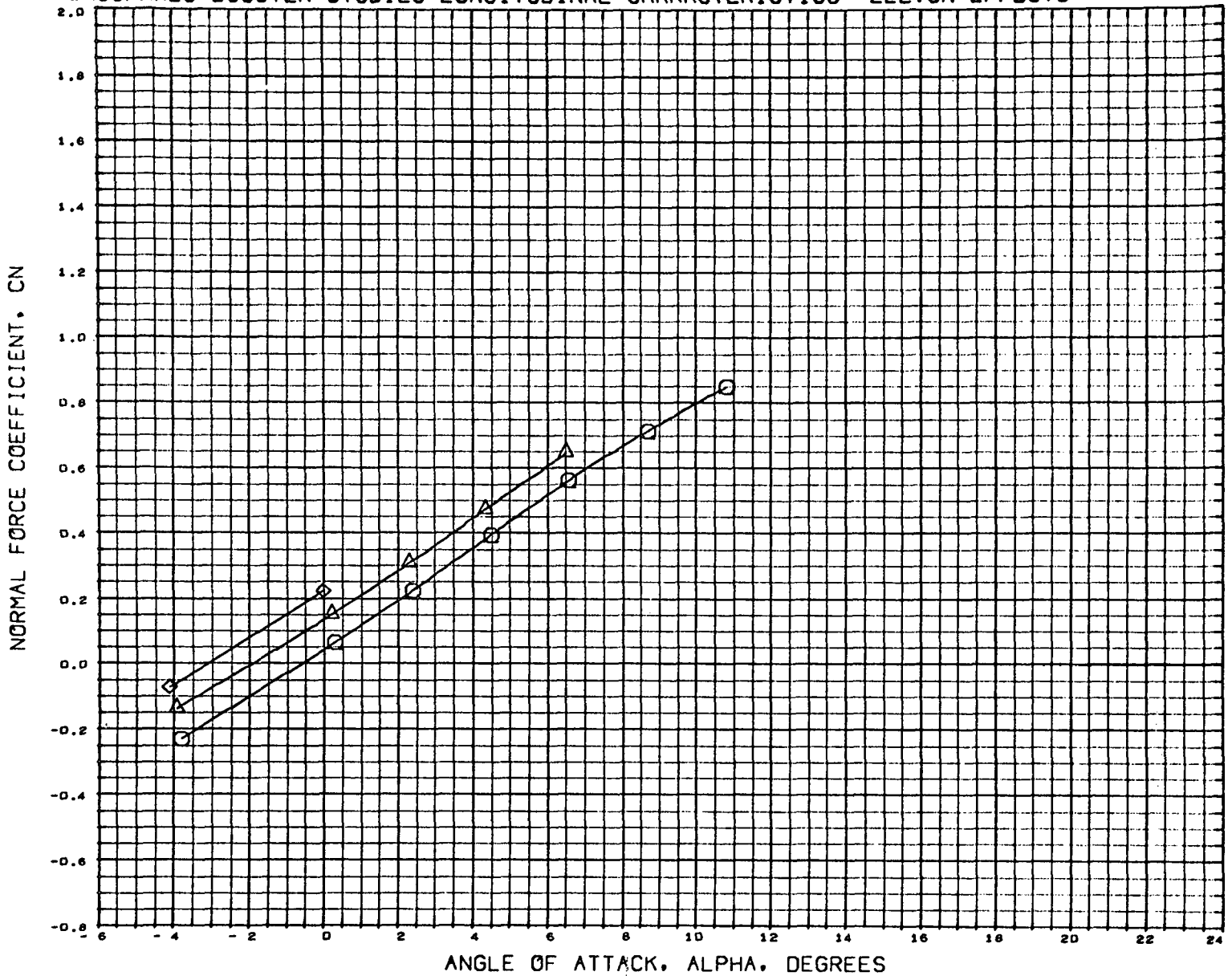
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 SQ. FT.
(RN3025)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3029)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.999

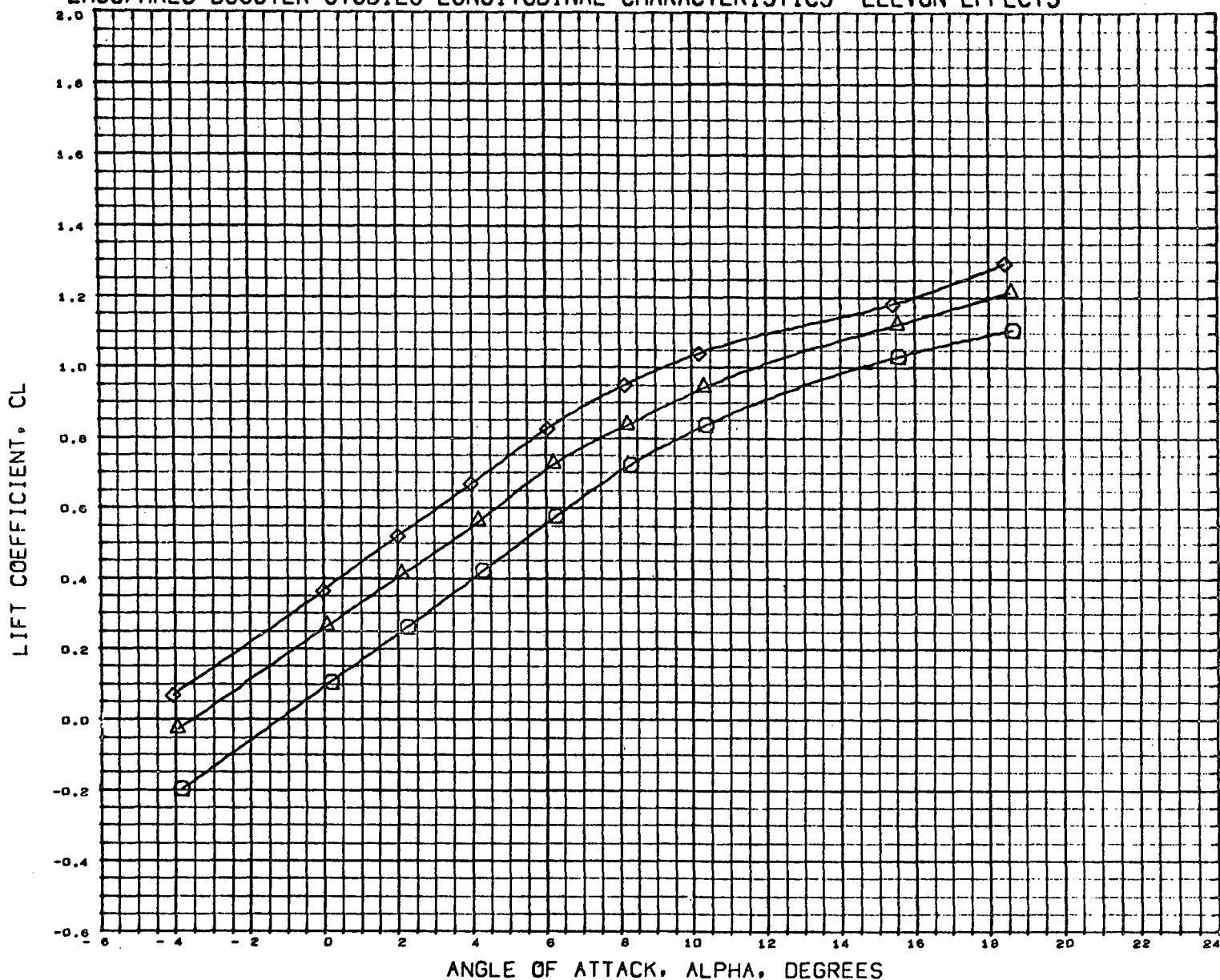
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 99.FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 1.128

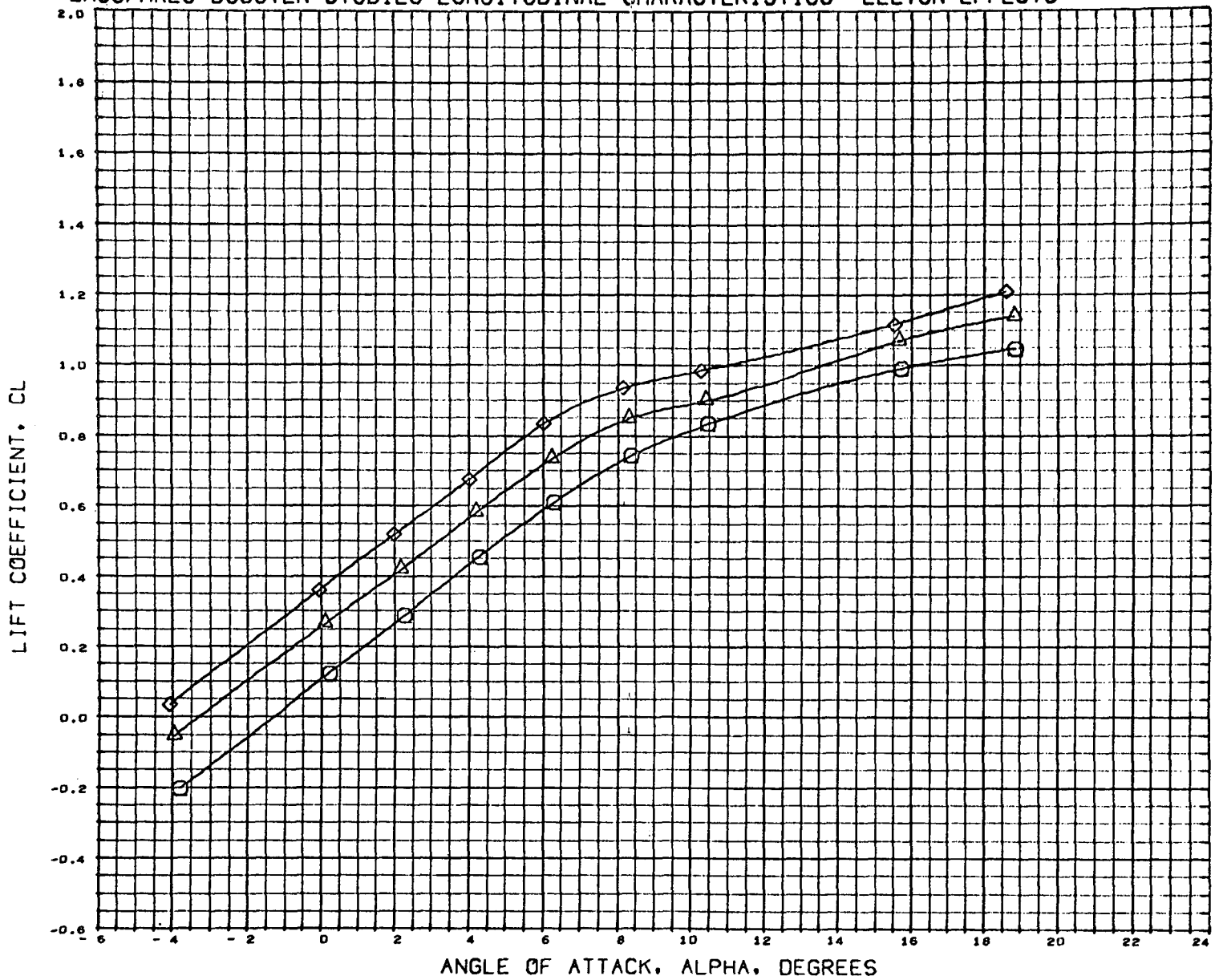
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021) ○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 SQ.FT.
(RN3023) △	NSRDC-3210,MSFC/LMSC BOOSTER D1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3029) ◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
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						YMRF	0.0000 FEET
						ZMRF	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.704

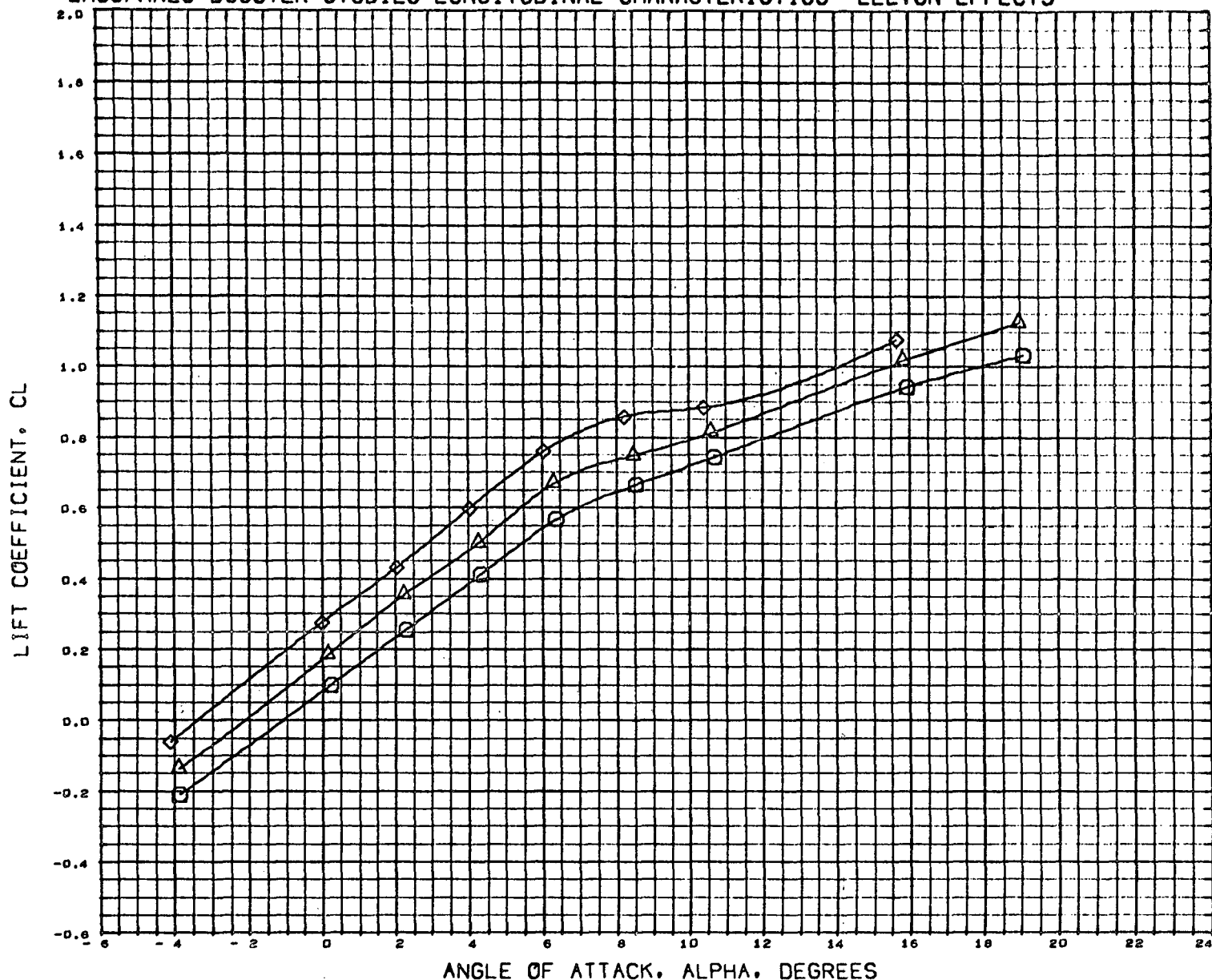
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 SQ.FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
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						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.802

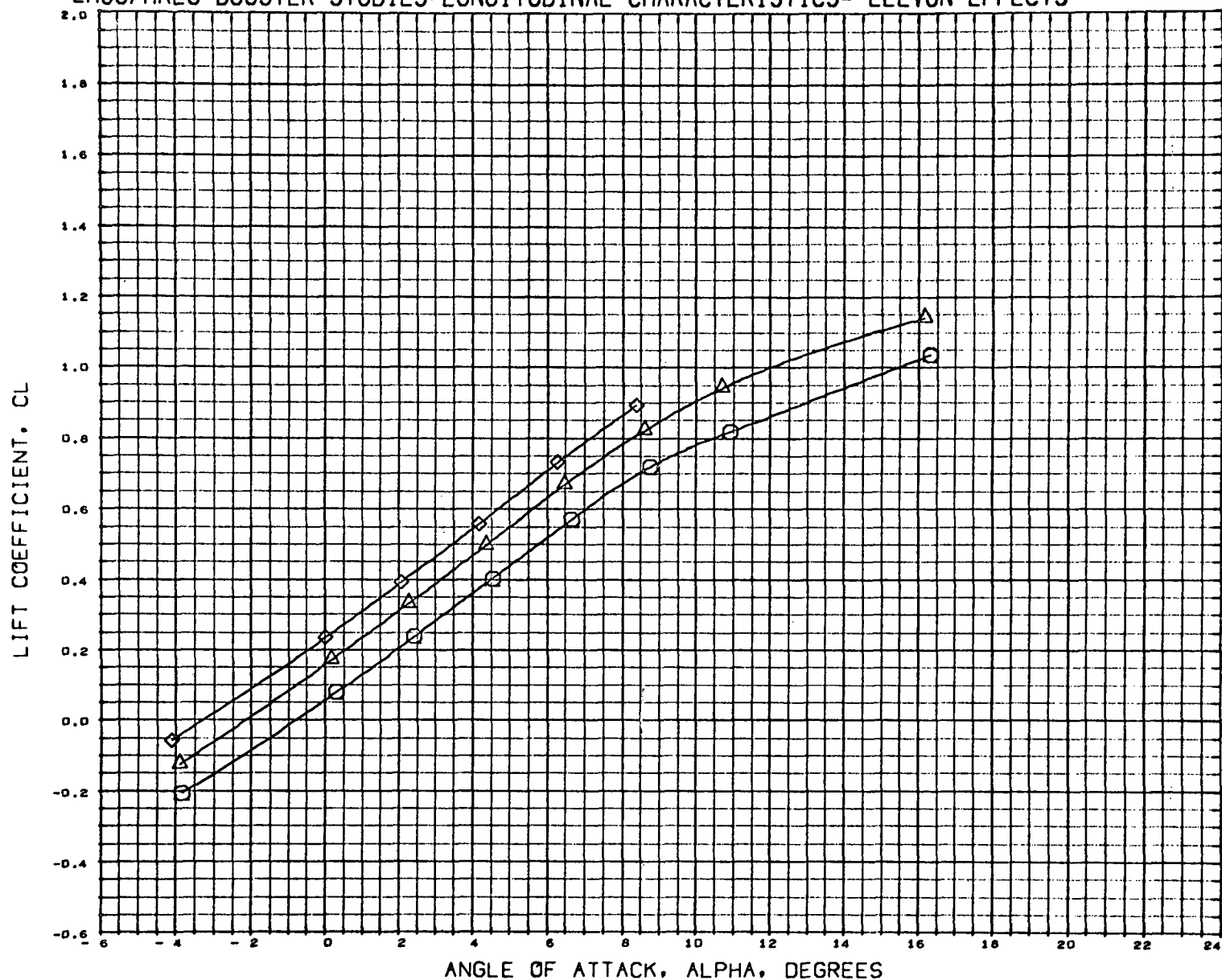
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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 SQ.FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0107 FEET
						SCALE	0.0150 SCALE

MACH 0.901

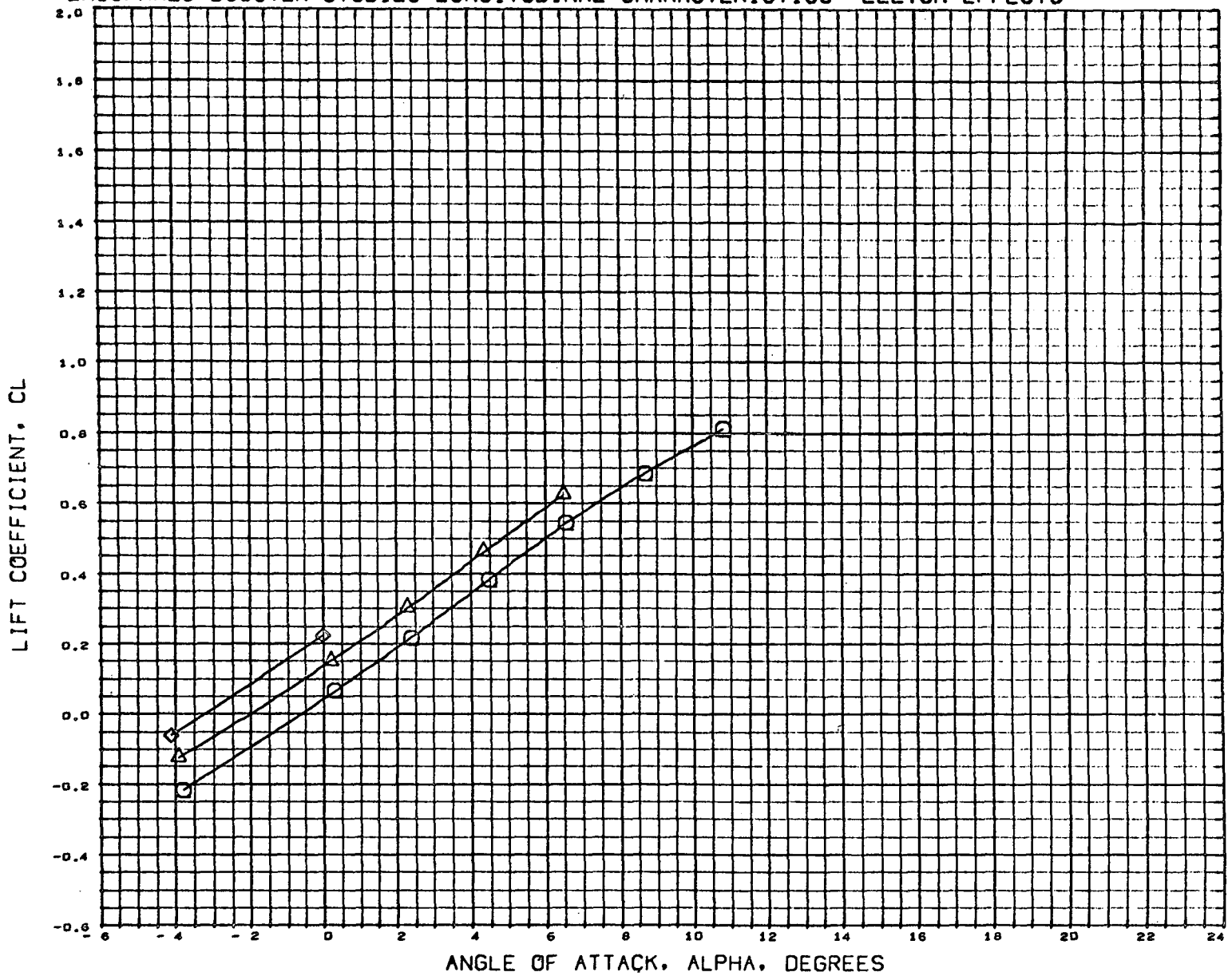
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 SQ.FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
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						YMRF	0.0000 FEET
						ZMRF	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.999

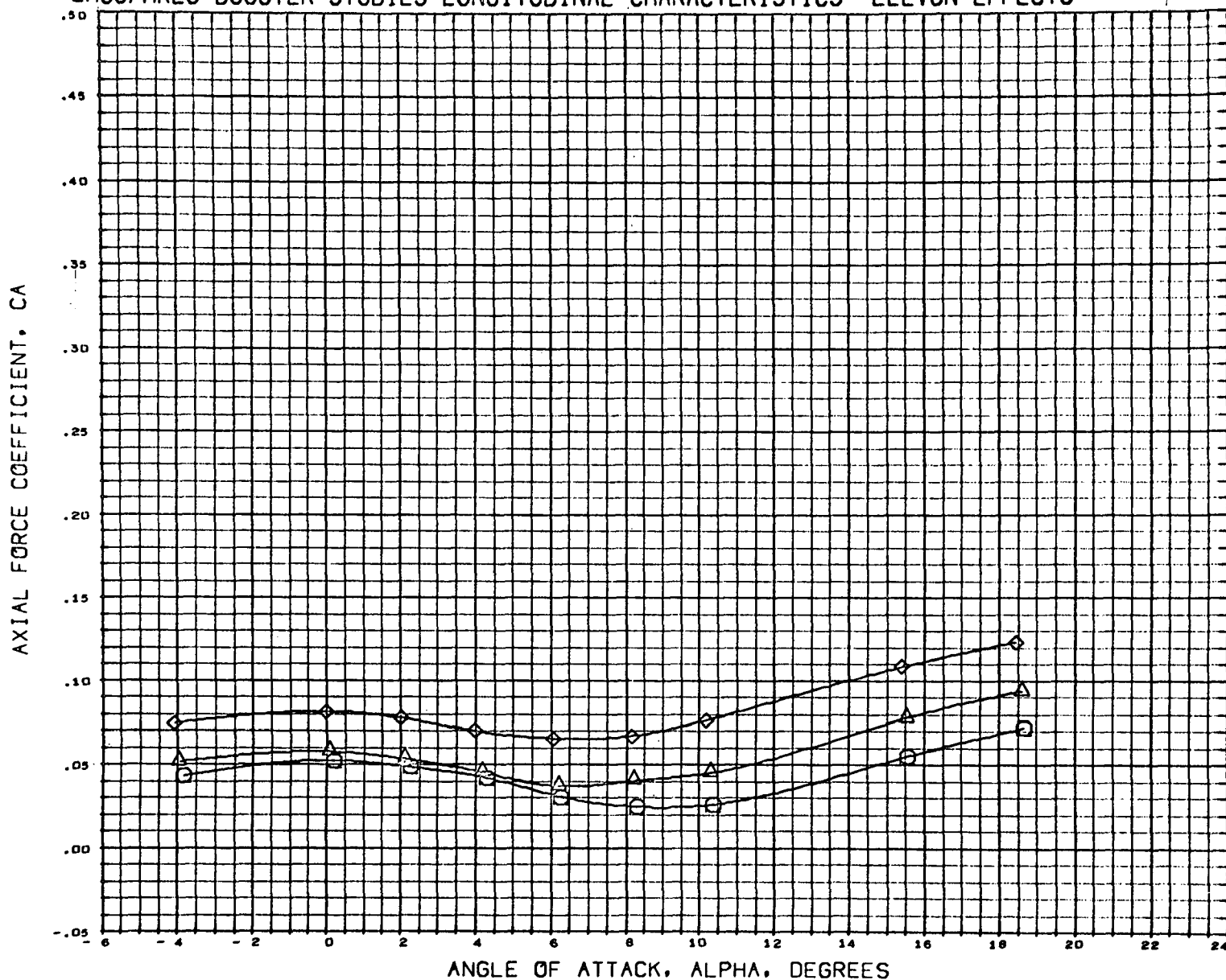
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 SQ.FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
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						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 1.128

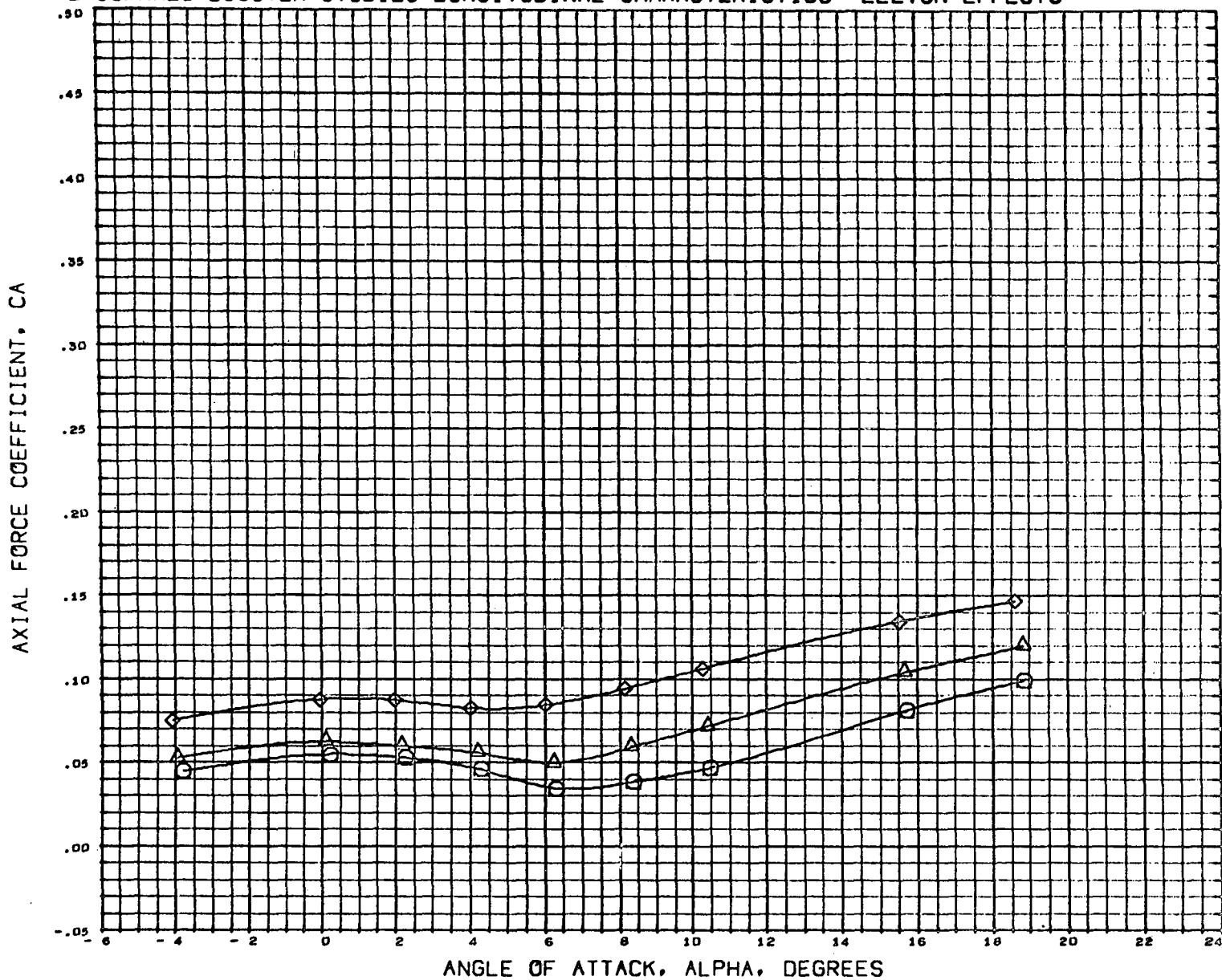
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 SQ.FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
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						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.704

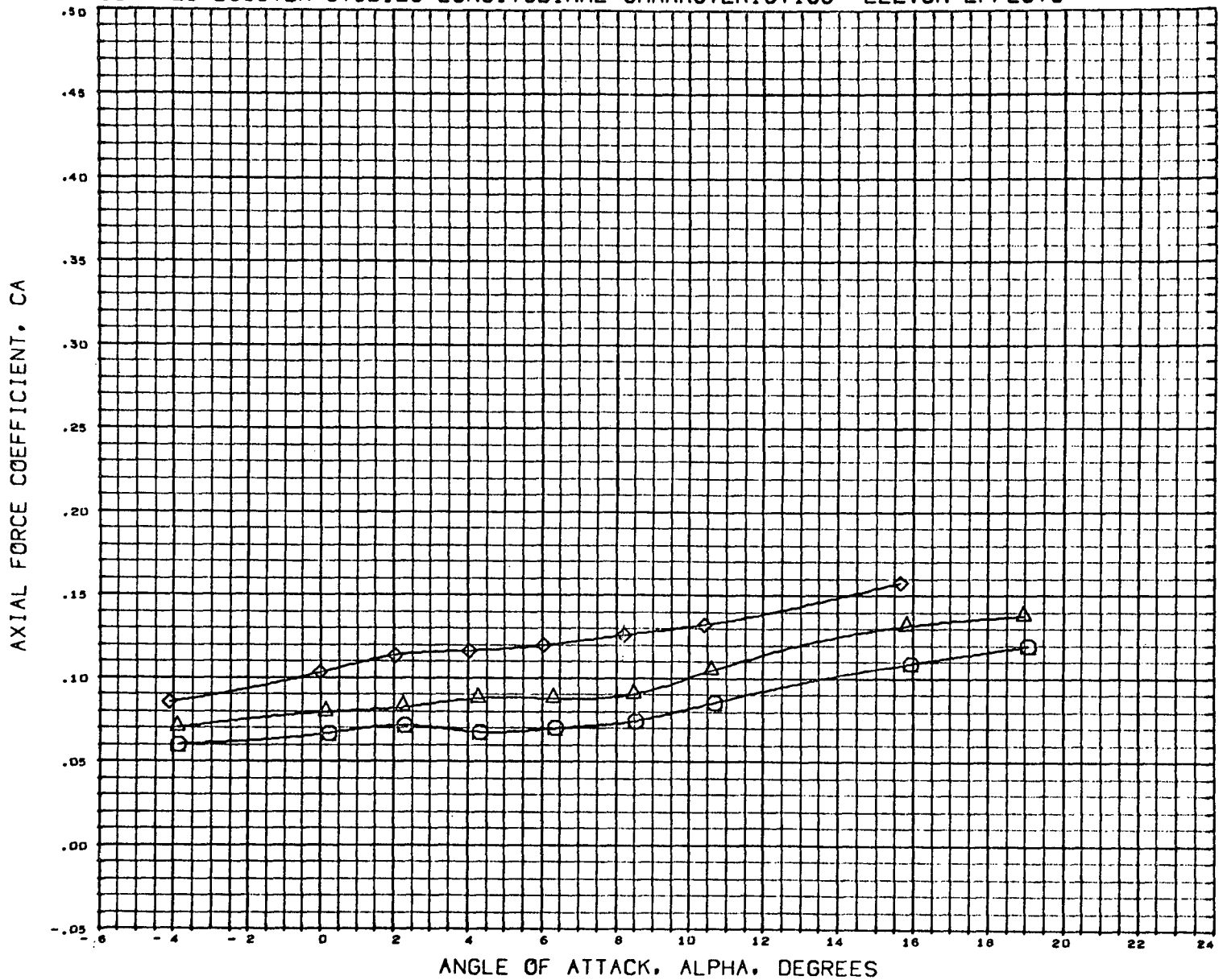
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 SQ.FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
						XMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.802

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

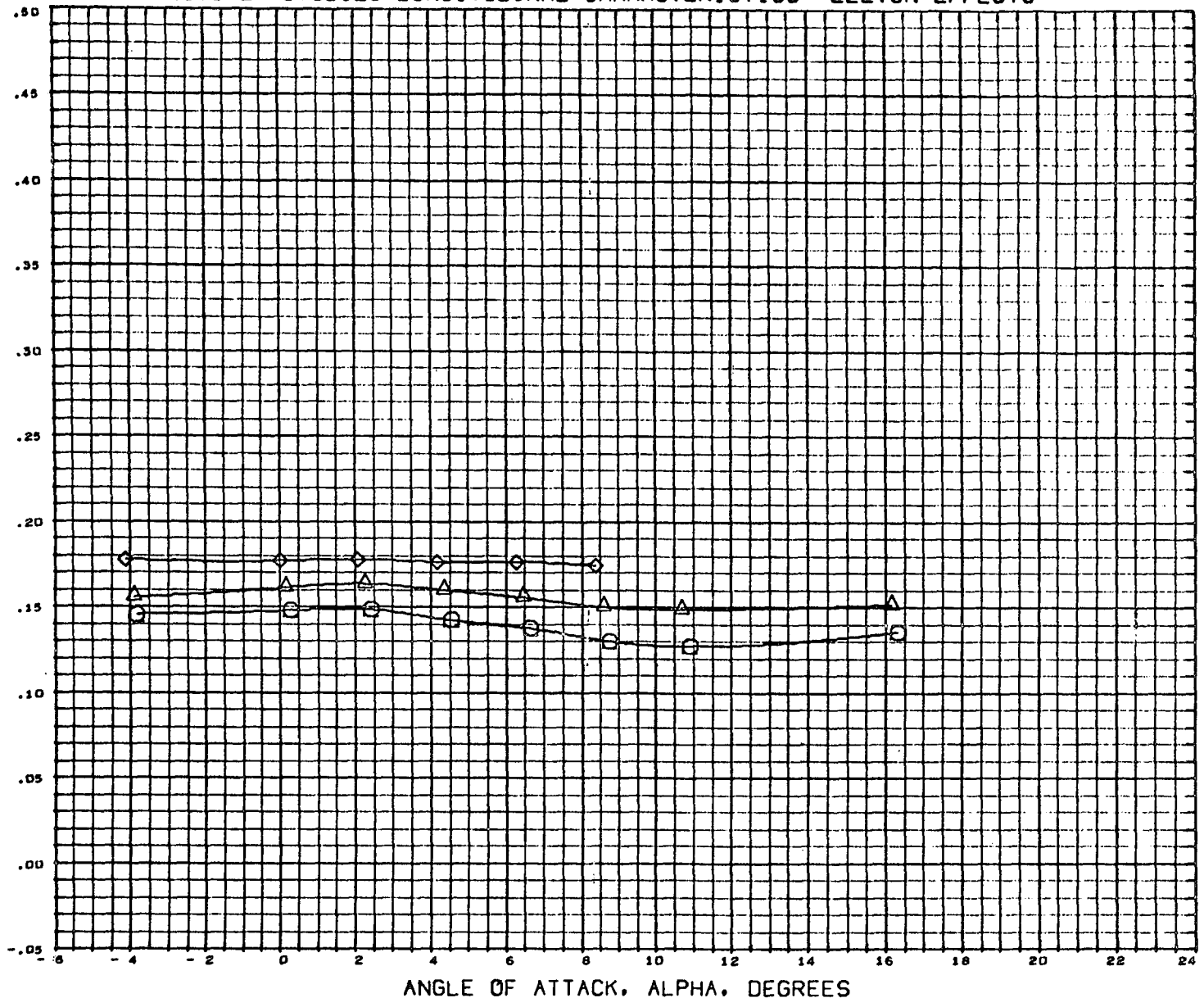


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 SQ.FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.901

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

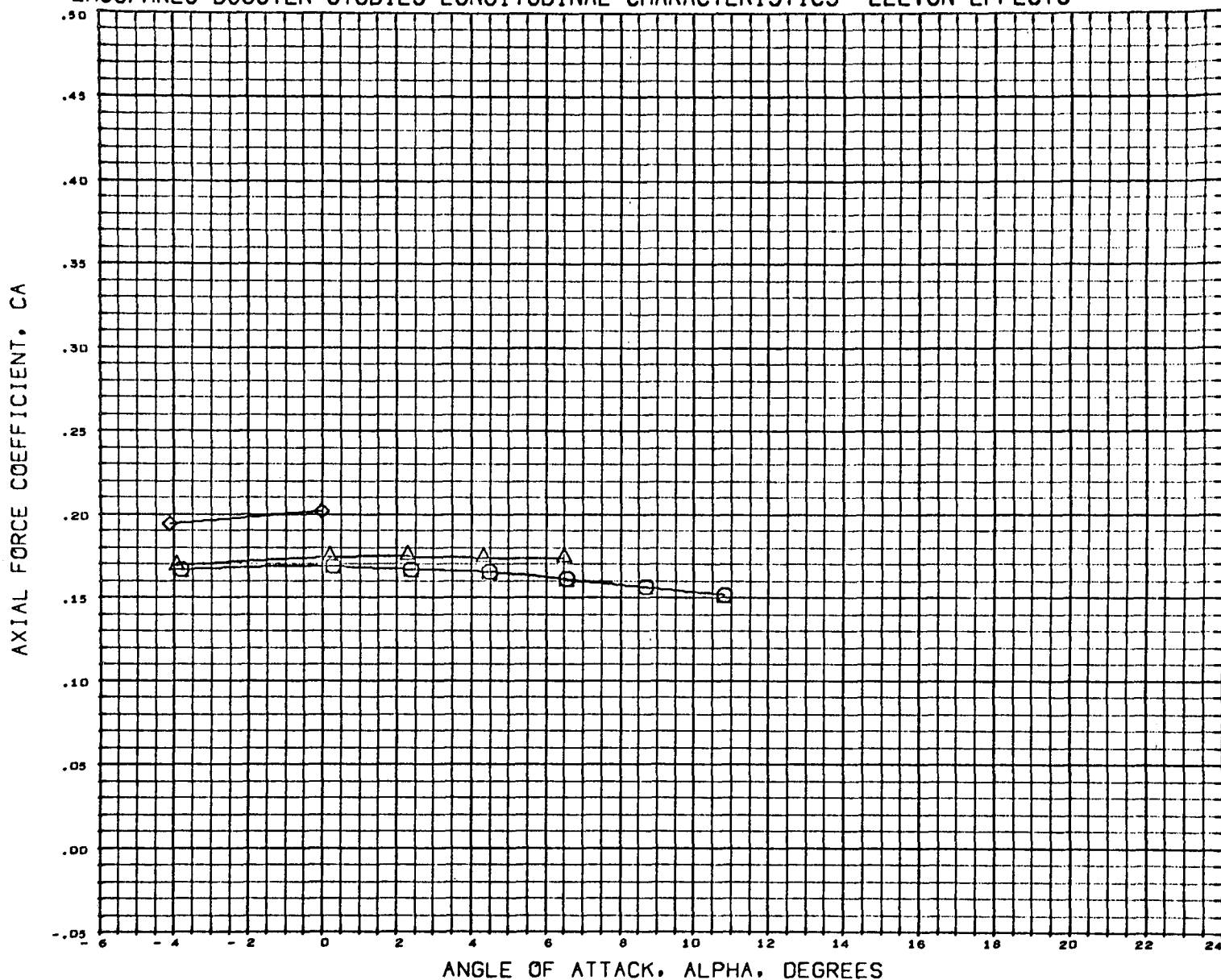
AXIAL FORCE COEFFICIENT, CA



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 SQ.FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.999

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

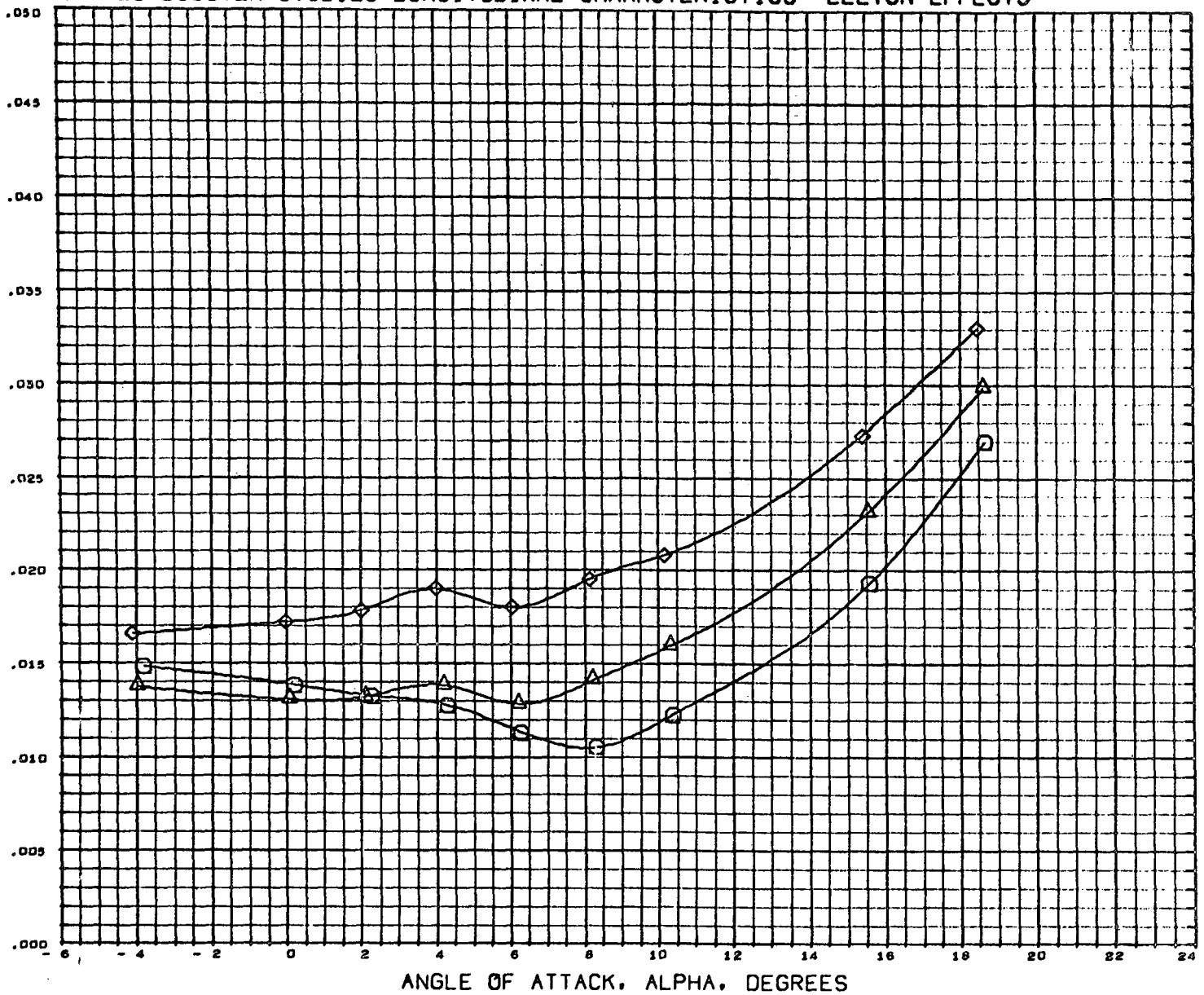


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 50.FT.
(RN3025)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3029)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
							XMRP	2.5950 FEET
							YMRP	0.0000 FEET
							ZMRP	0.0187 FEET
							SCALE	0.0150 SCALE

MACH 1.128

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

BASE AXIAL FORCE COEFFICIENT, CAB



DATA SET SYMBOL

CONFIGURATION DESCRIPTION

ELEVTR

AILRON

RUDDER

CANARD

REFERENCE INFORMATION

(RN3021)

○

NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1

0.000

0.000

0.000

10.000

SREF

1.3550 SQ.FT.

(RN3025)

△

NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1

10.000

0.000

0.000

10.000

LREF

3.4530 FEET

(RN3029)

◇

NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1

20.000

0.000

0.000

10.000

BREF

3.4530 FEET

XMPP

2.5950 FEET

YMPP

0.0000 FEET

ZMPP

0.0187 FEET

SCALE

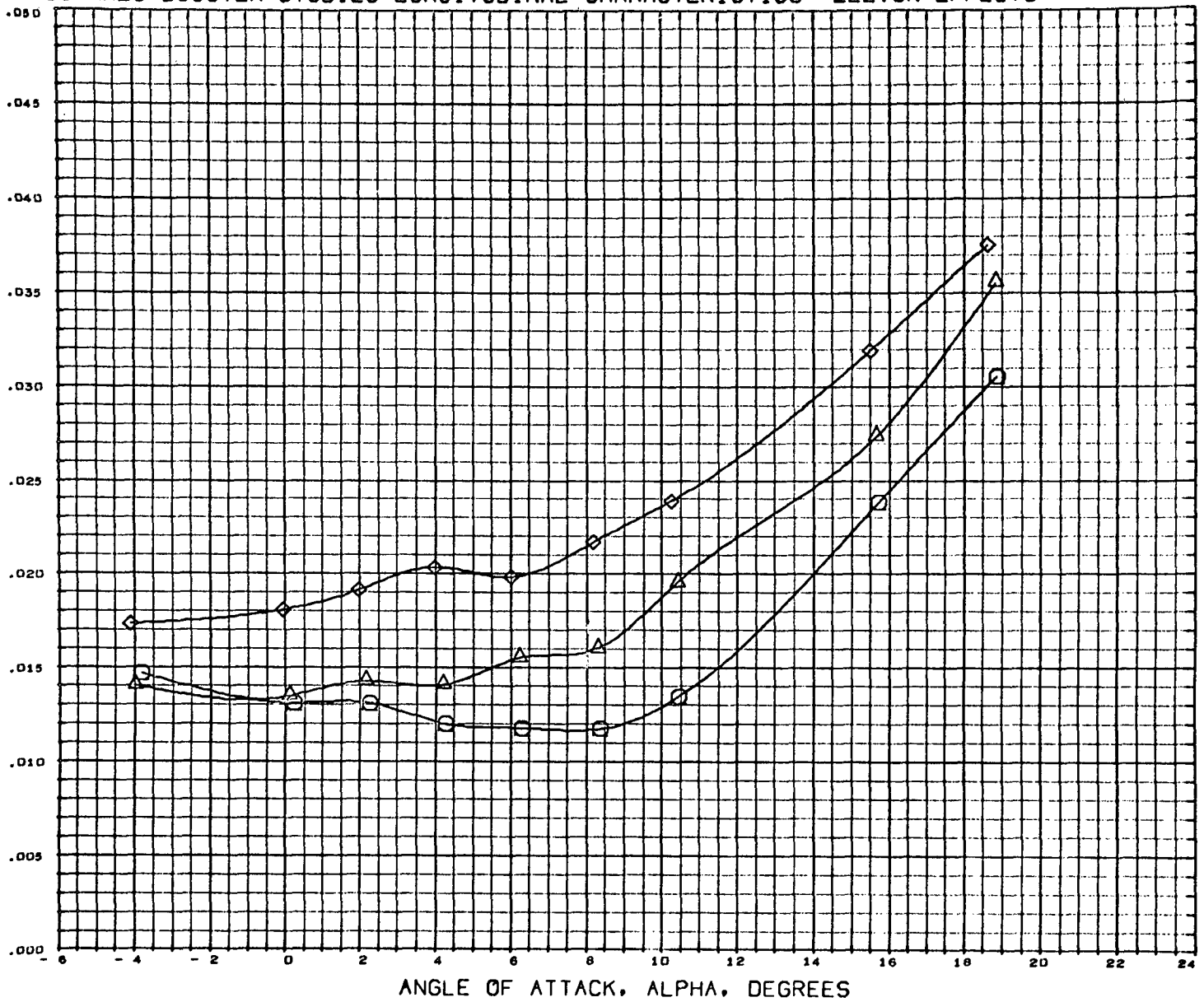
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MACH

0.704

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

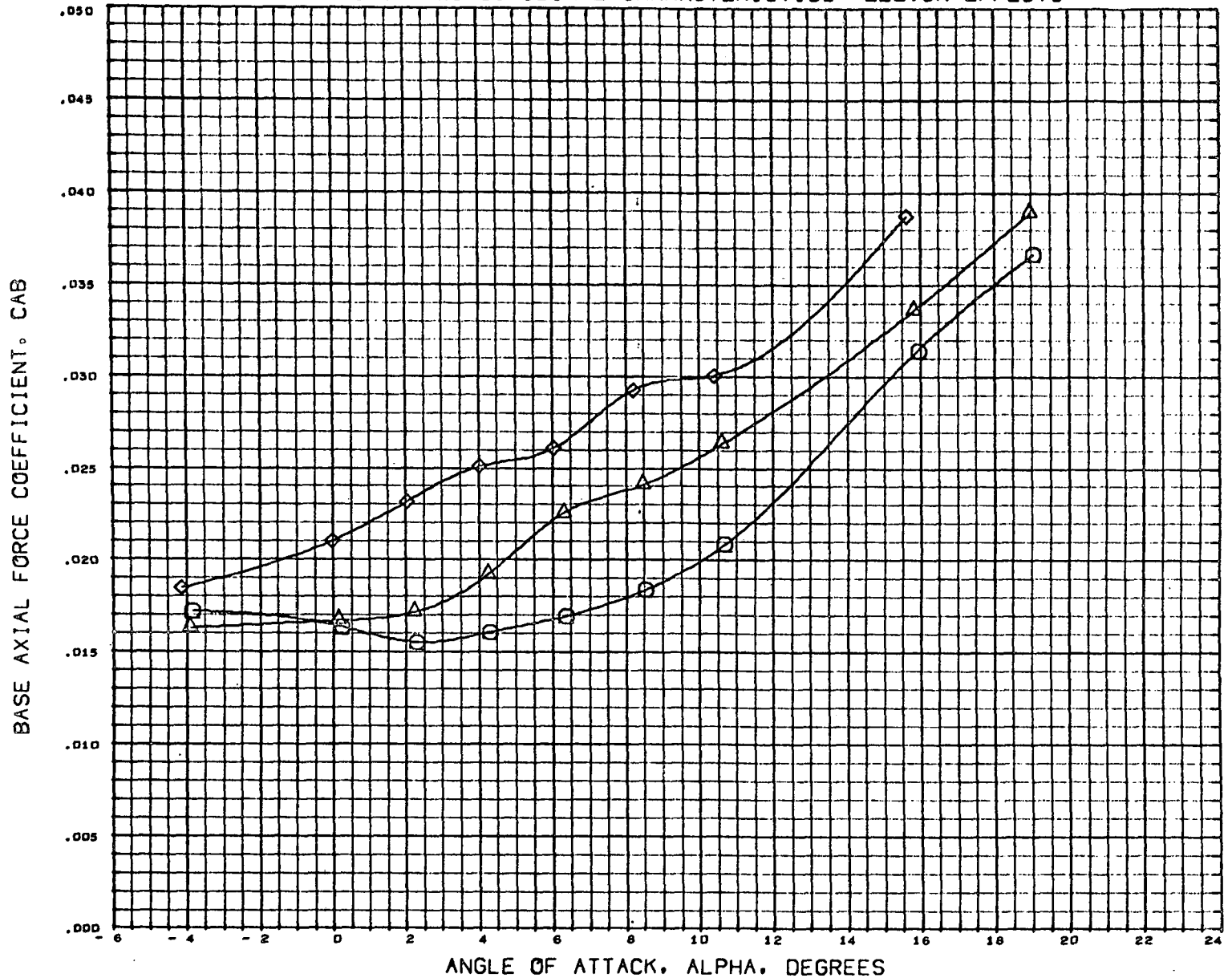
BASE AXIAL FORCE COEFFICIENT, CAB



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 SQ.FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.802

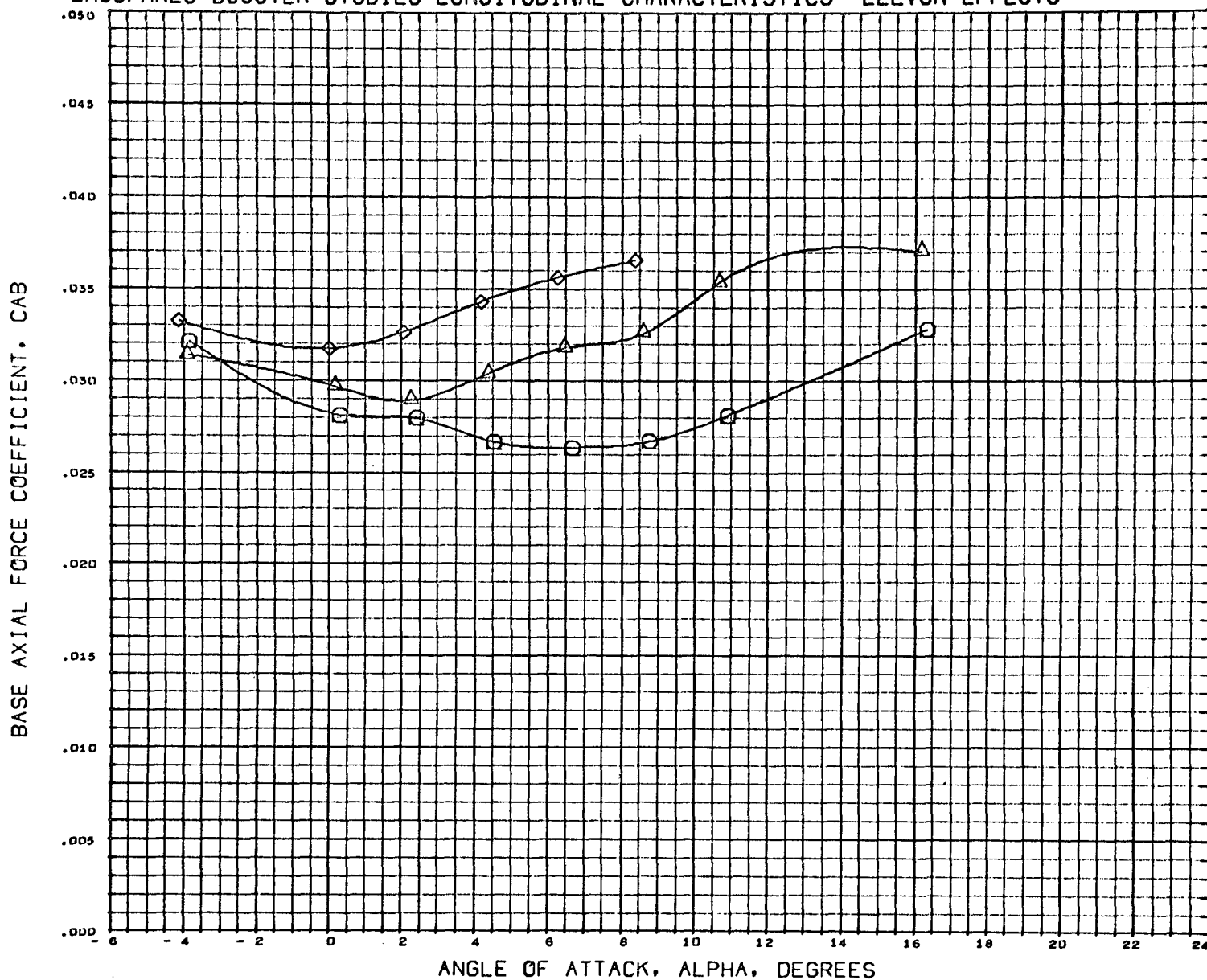
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 SQ.FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
						XMRF	2.5950 FEET
						YMRF	0.0000 FEET
						ZMRF	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.903

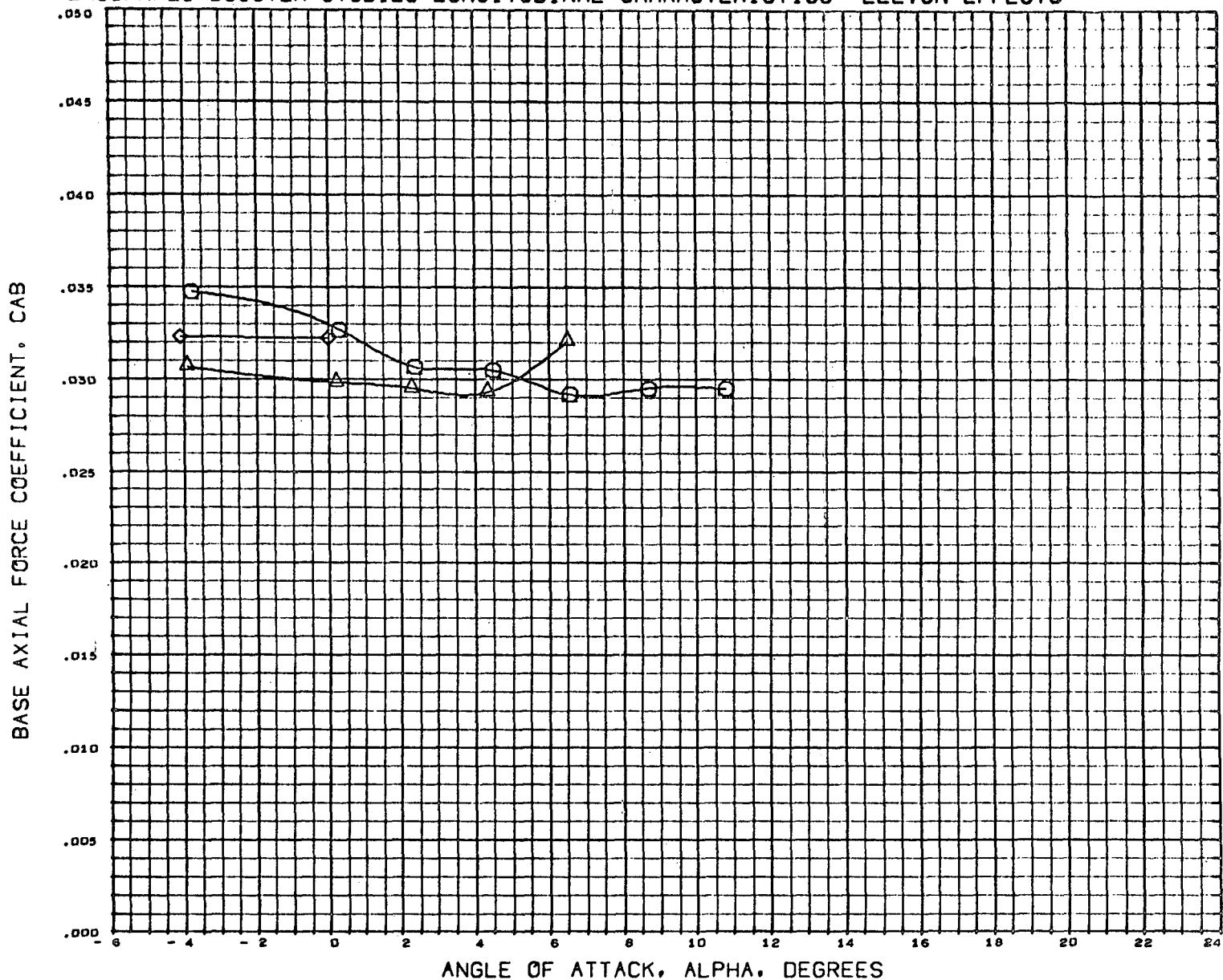
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 SQ.FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.999

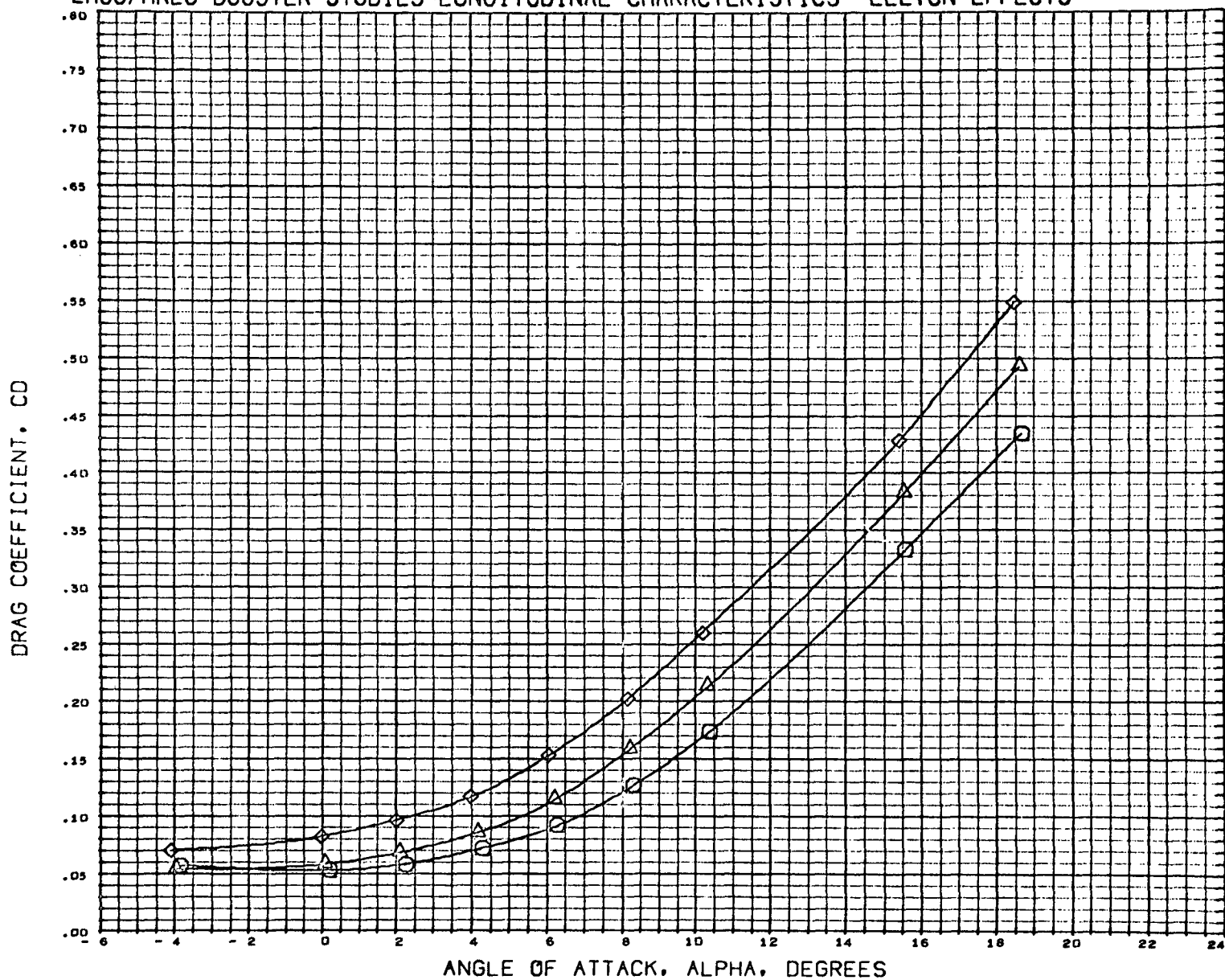
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 SQ.FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 1.128

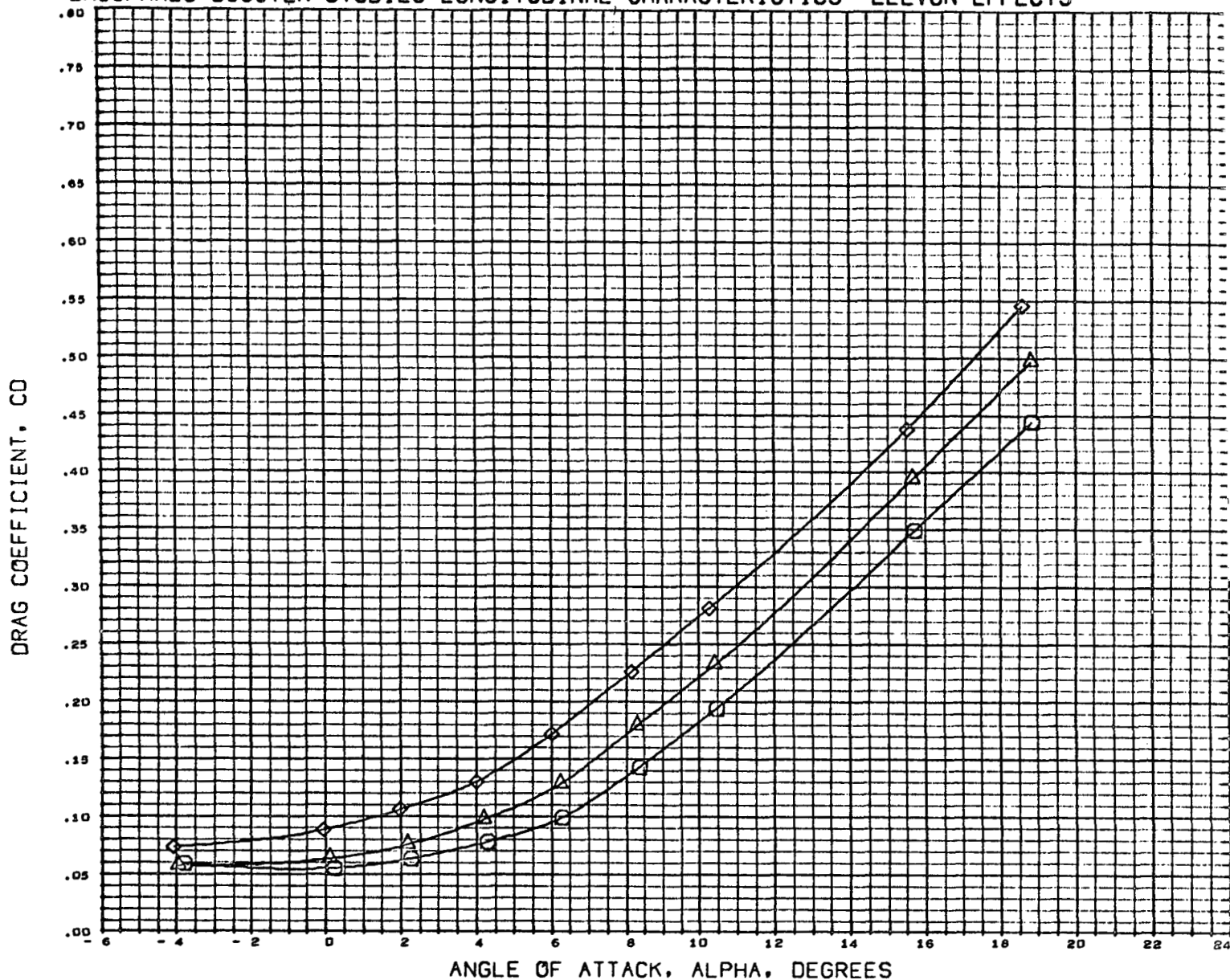
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 SQ.FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
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						YMRF	0.0000 FEET
						ZMRF	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.704

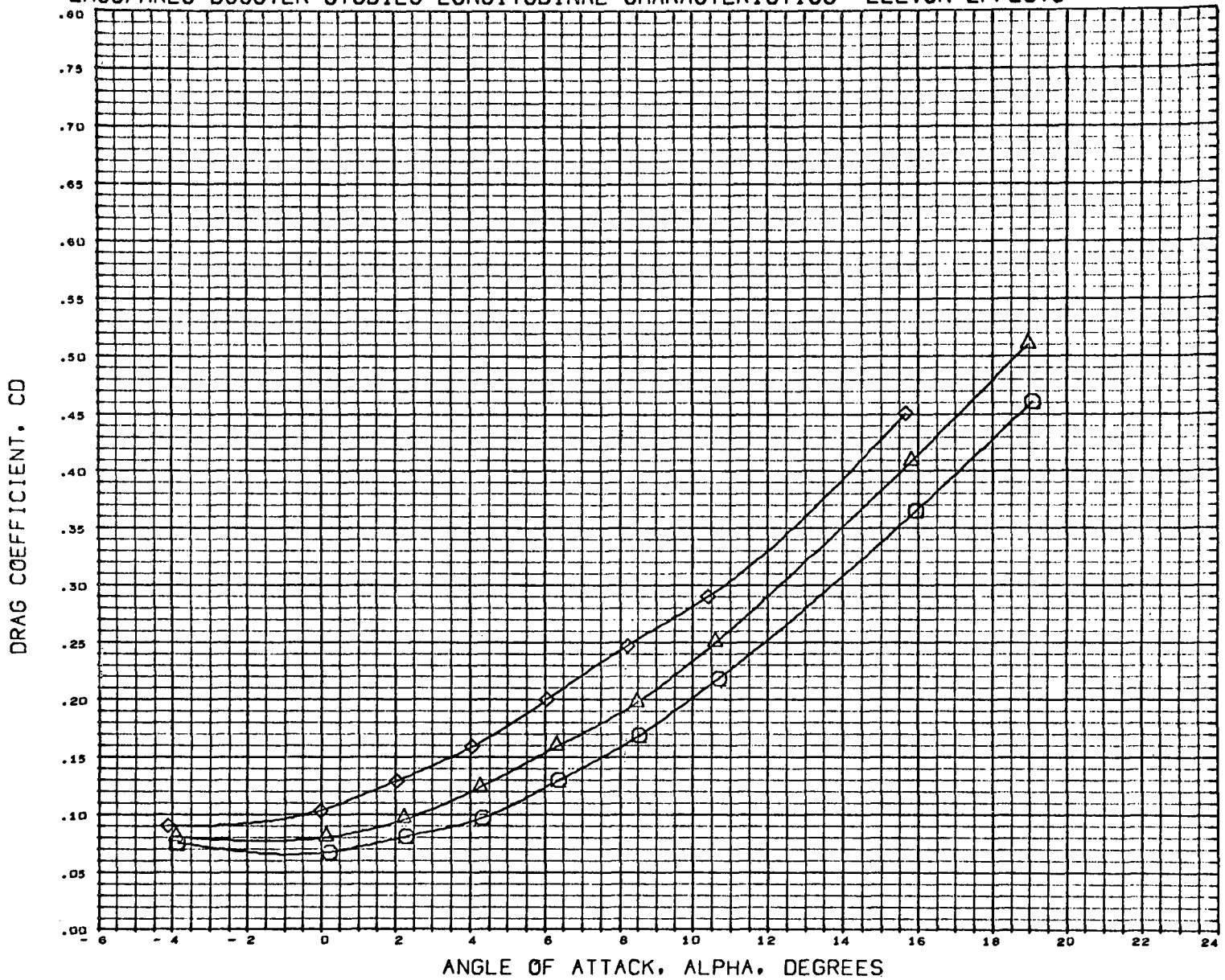
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 SQ.FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.802

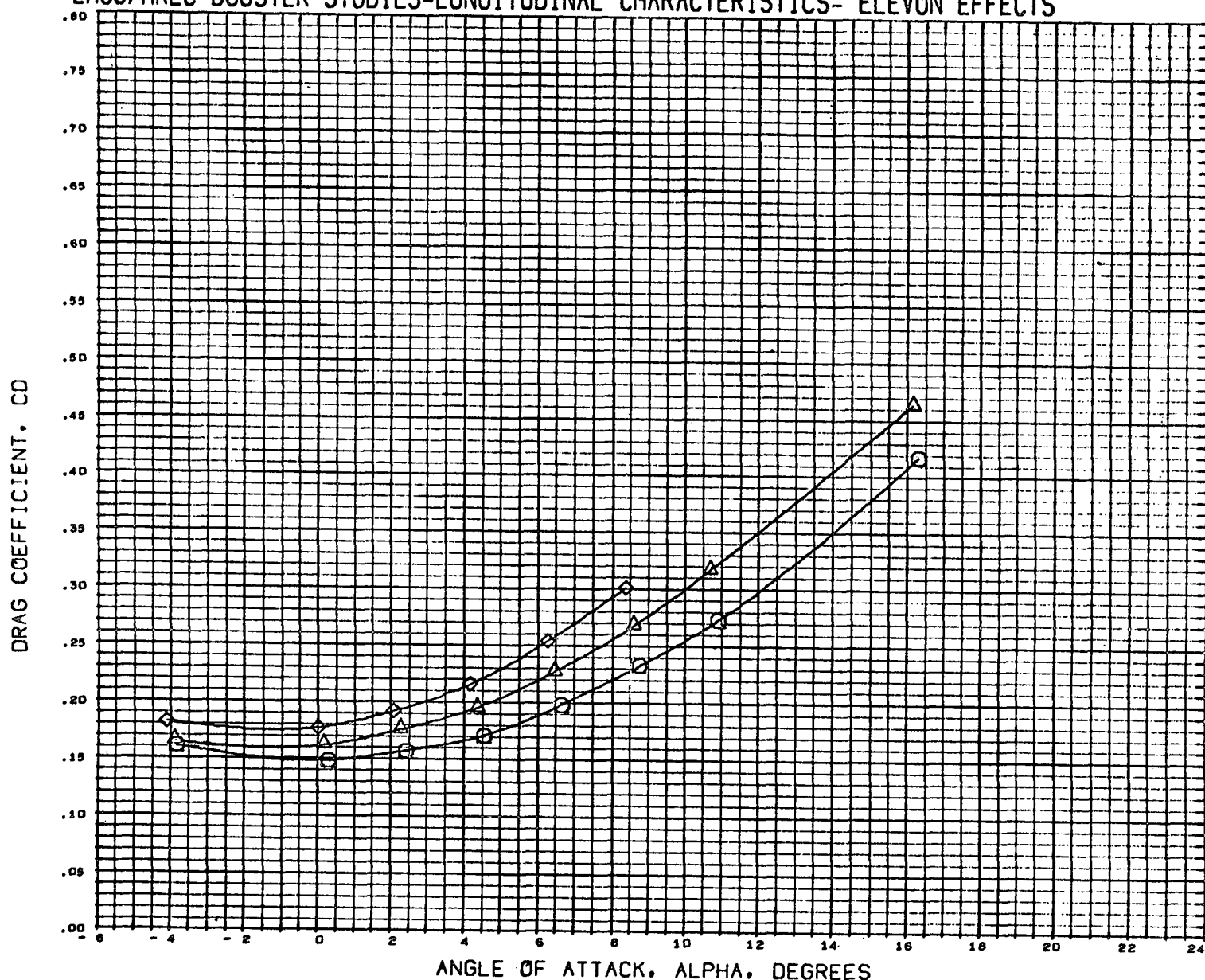
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	A1LRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 SQ.FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.901

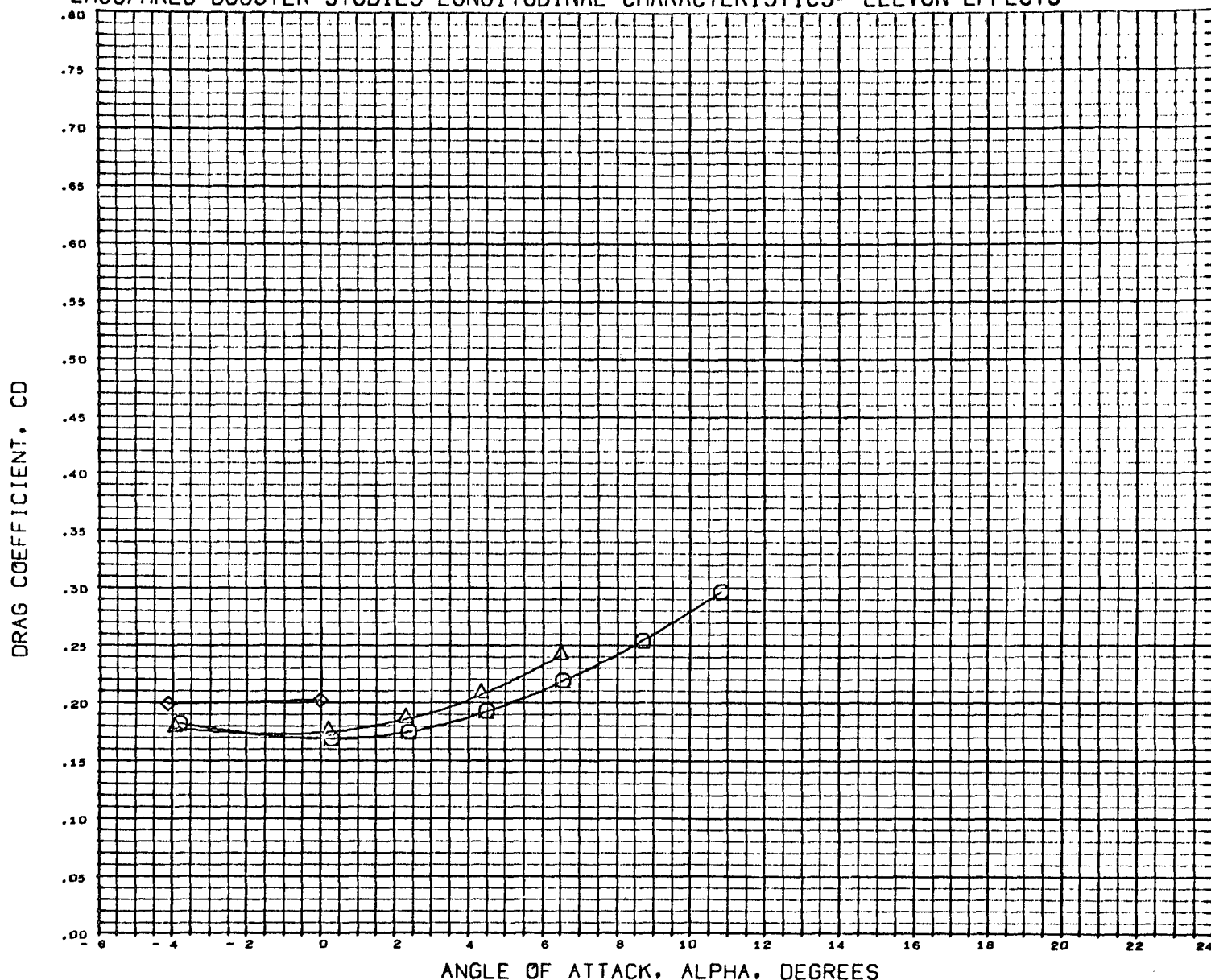
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 SQ.FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.999

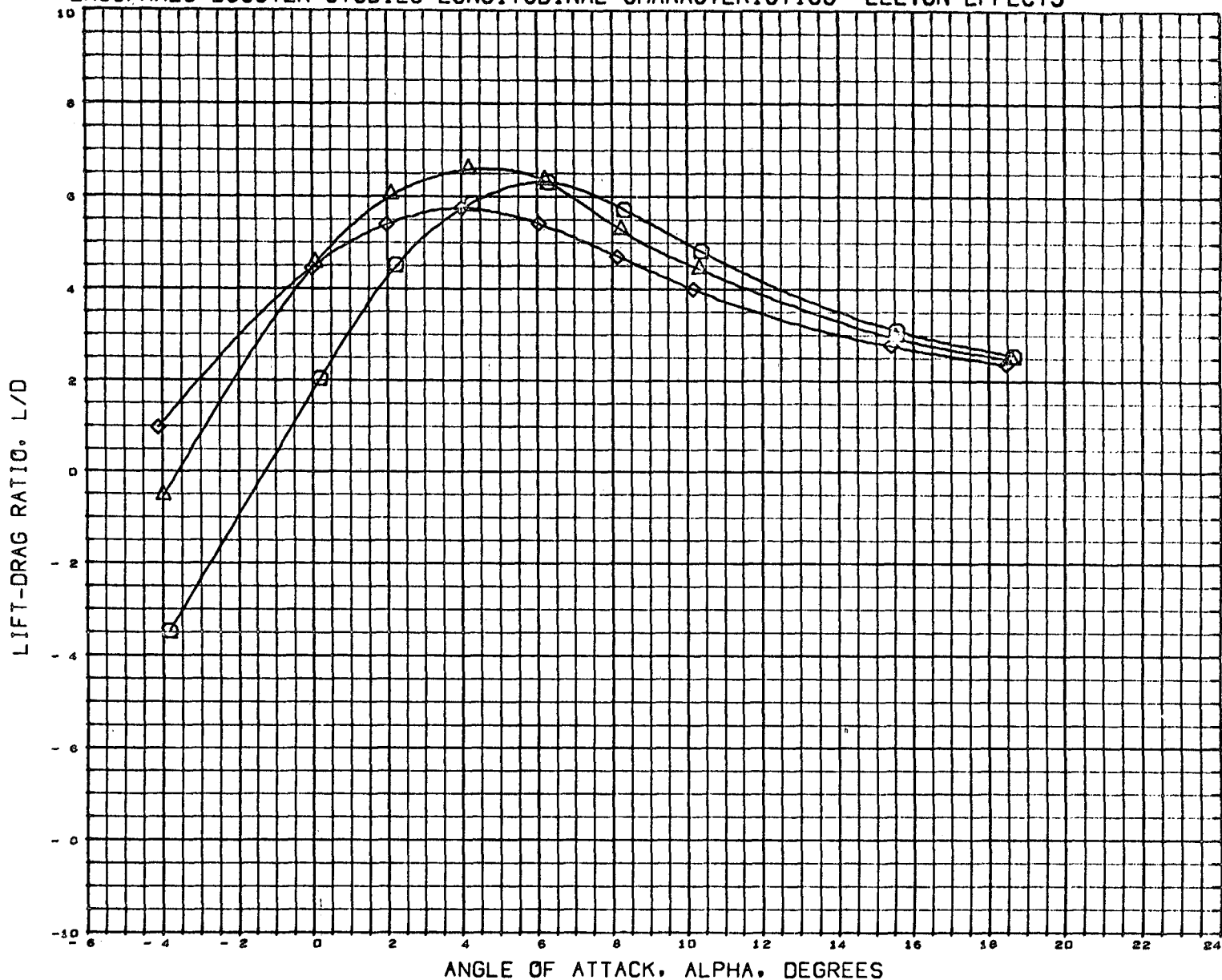
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 90.FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 1.128

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

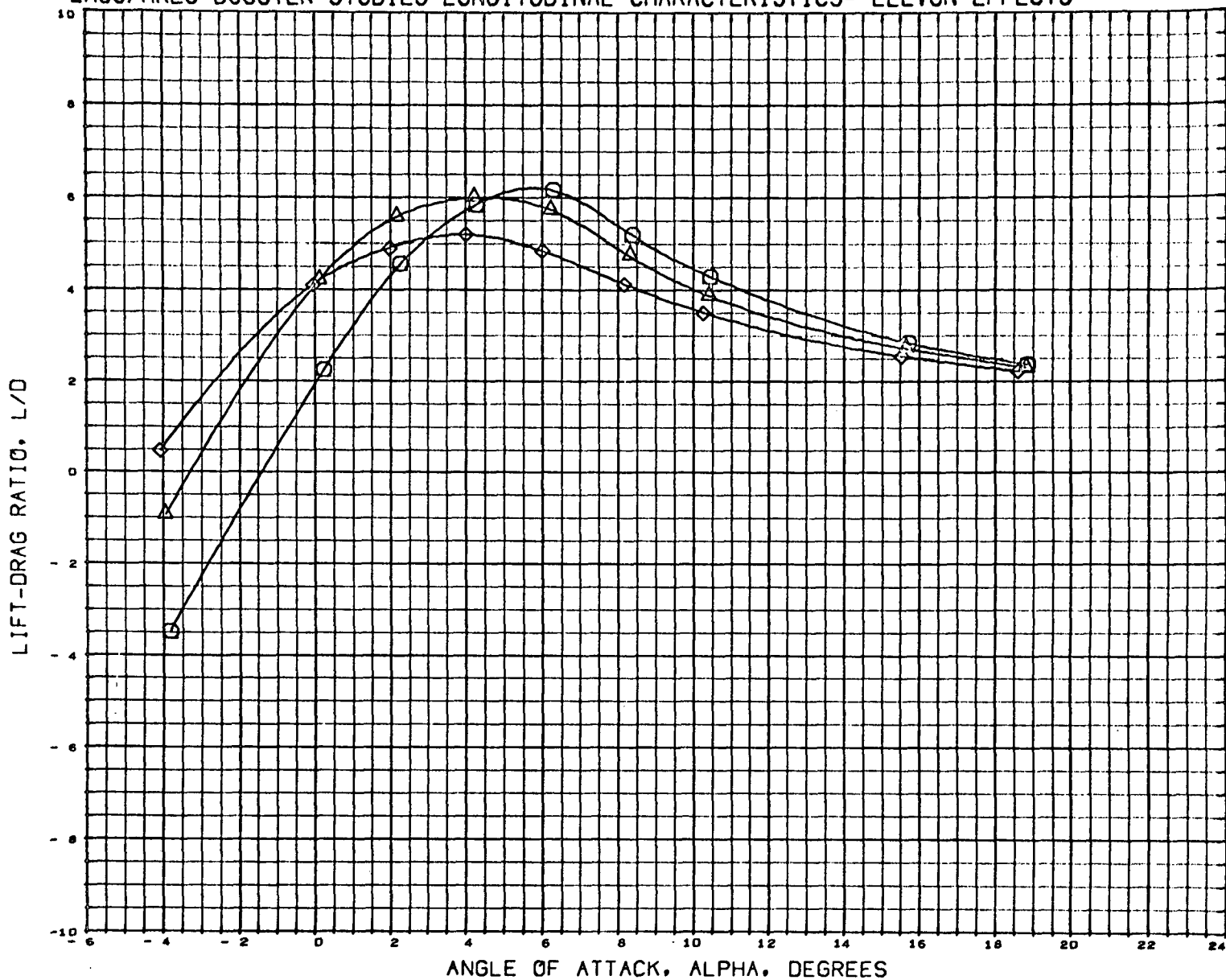


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 SQ.FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
						XMRF	2.5950 FEET
						YMRF	0.0000 FEET
						ZMRF	0.0167 FEET
						SCALE	0.0150 SCALE

MACH

0.704

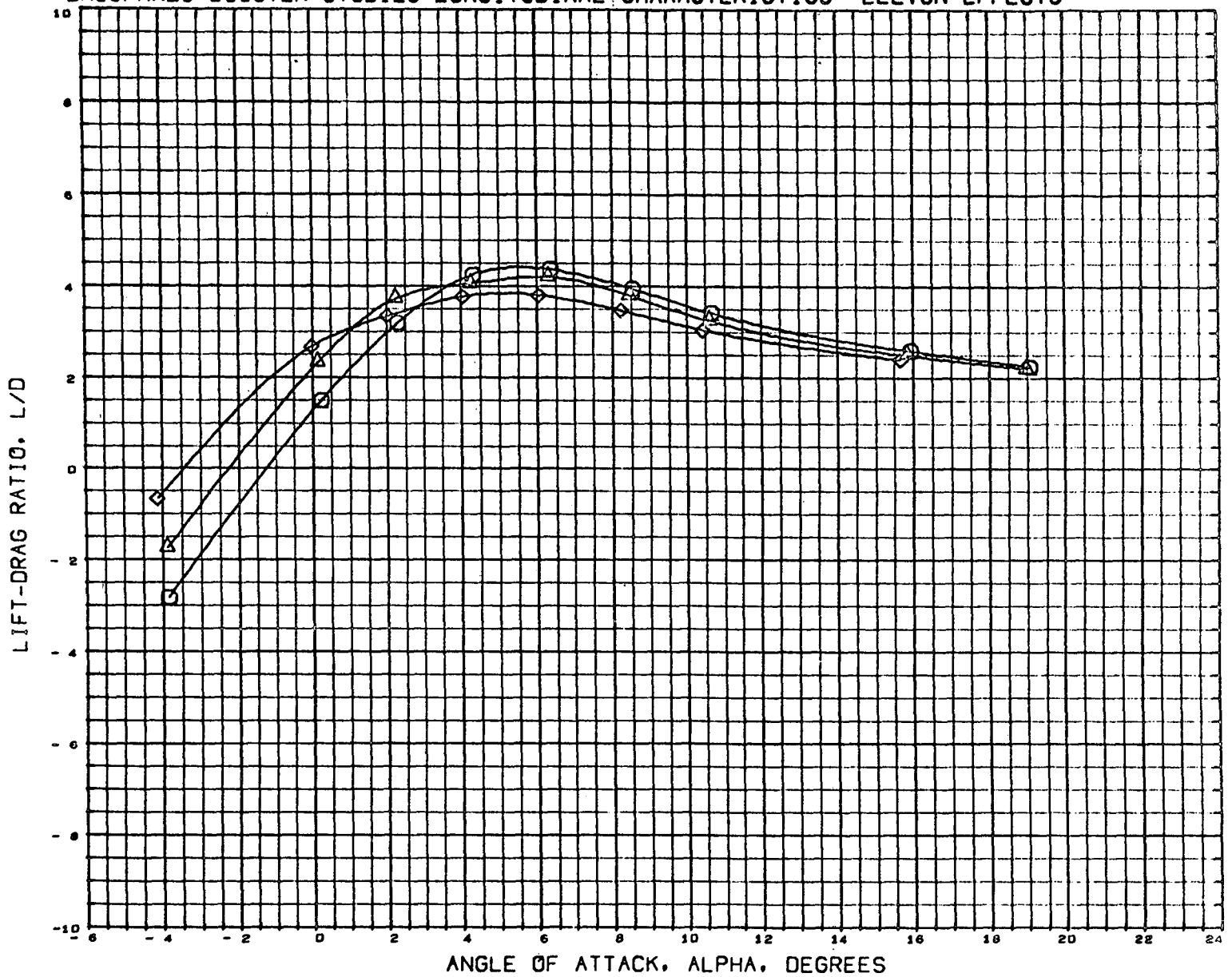
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 SQ.FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.602

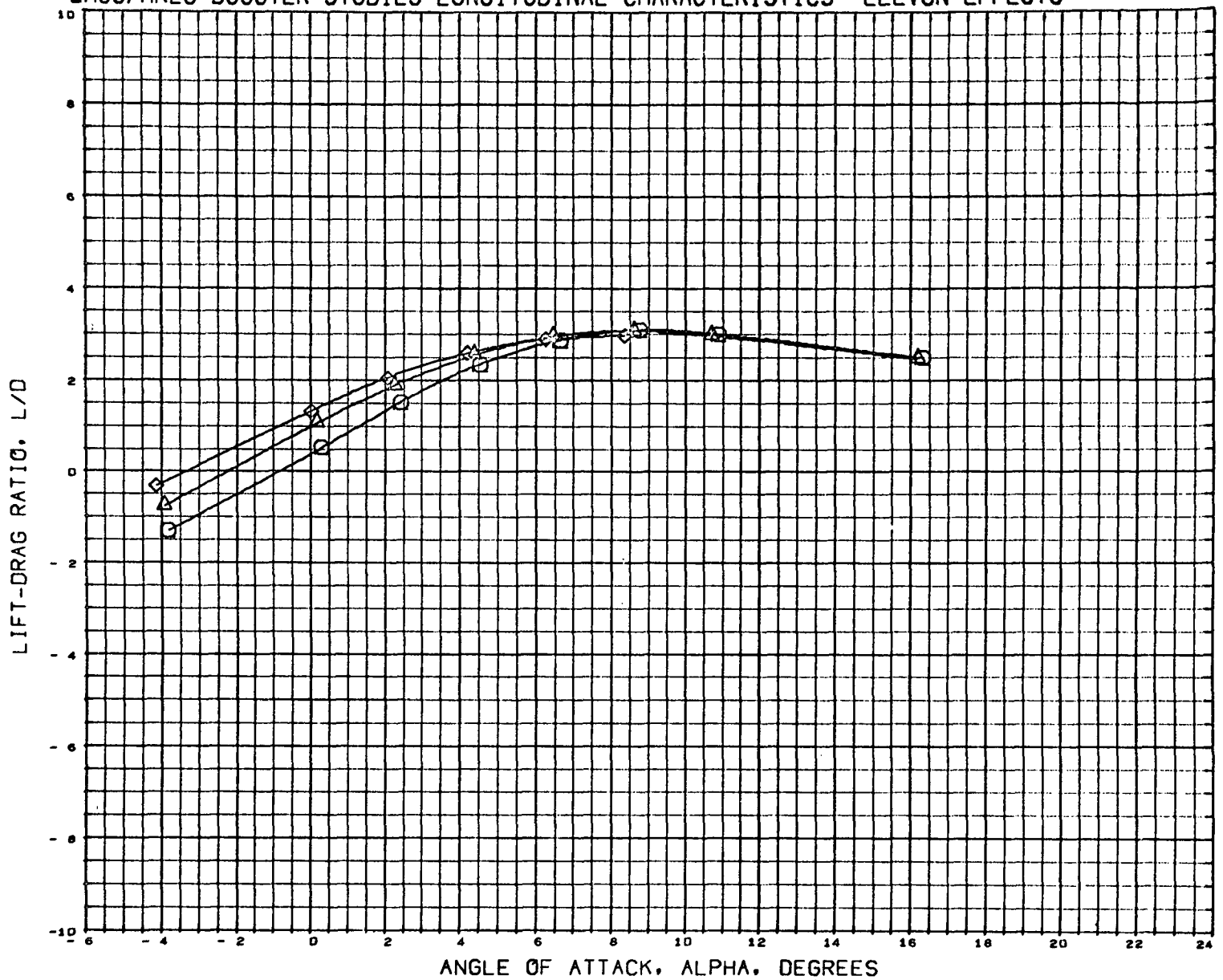
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 SQ.FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.901

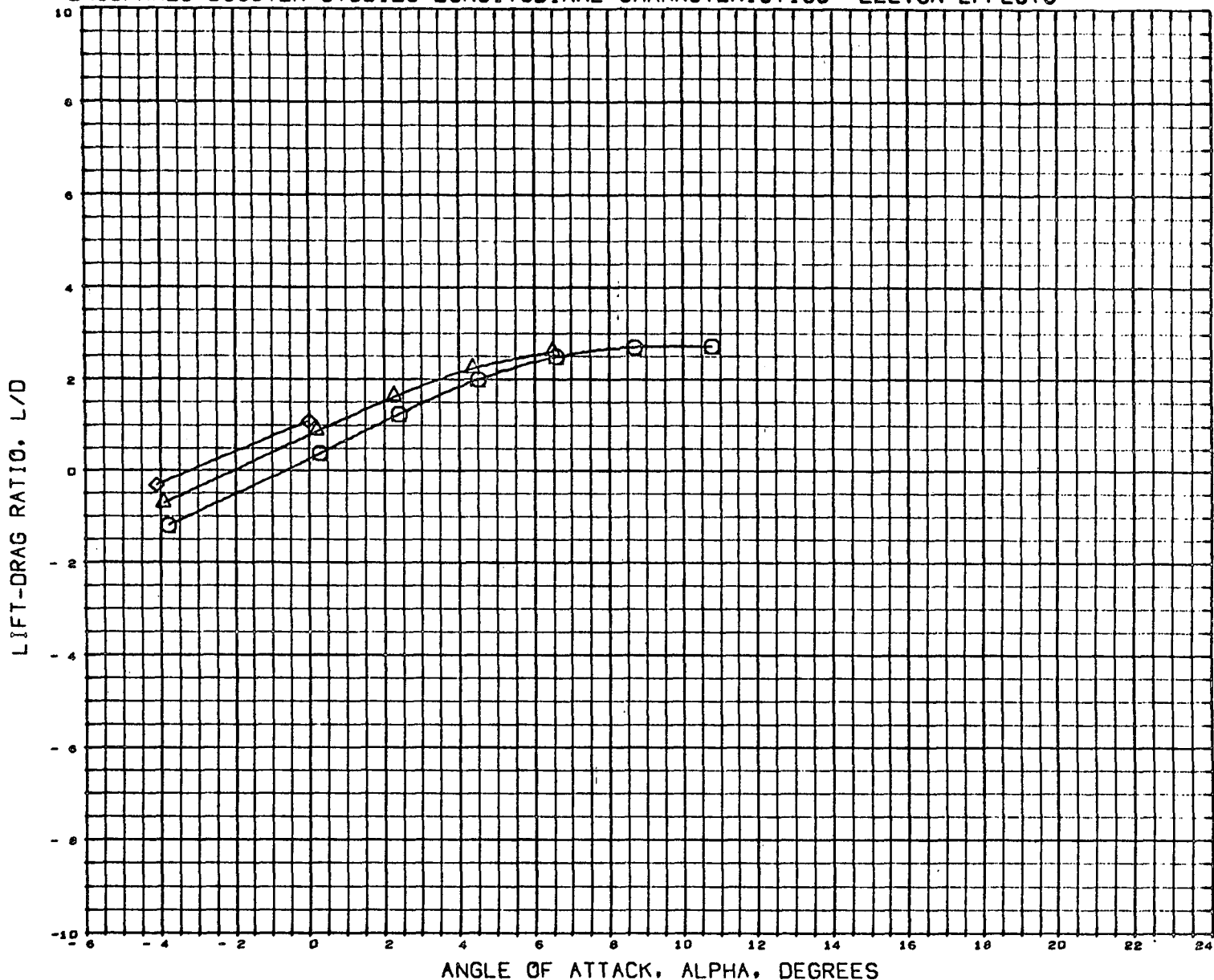
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 SQ.FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.995

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

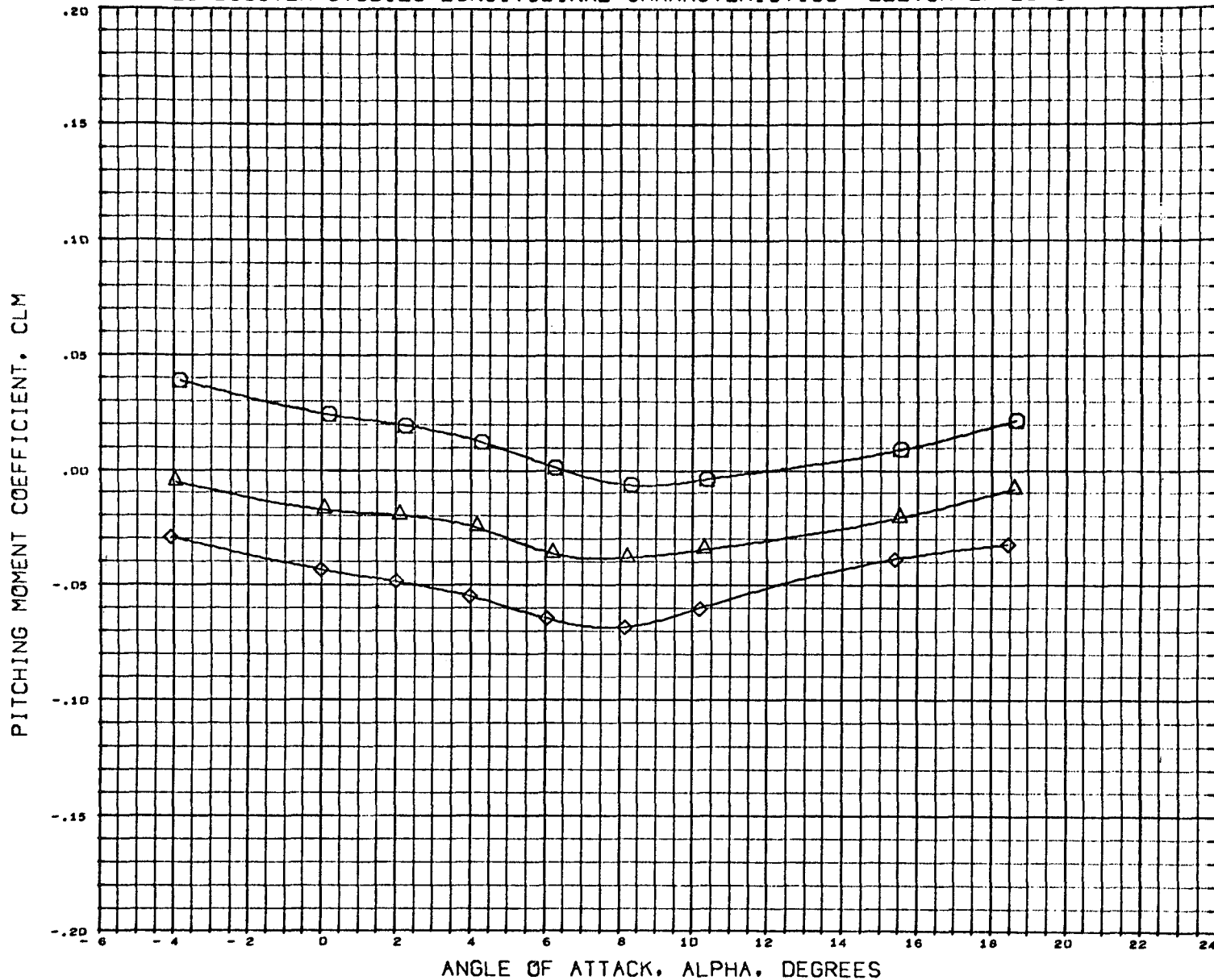


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 SQ.FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
						XMRF	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH

1.128

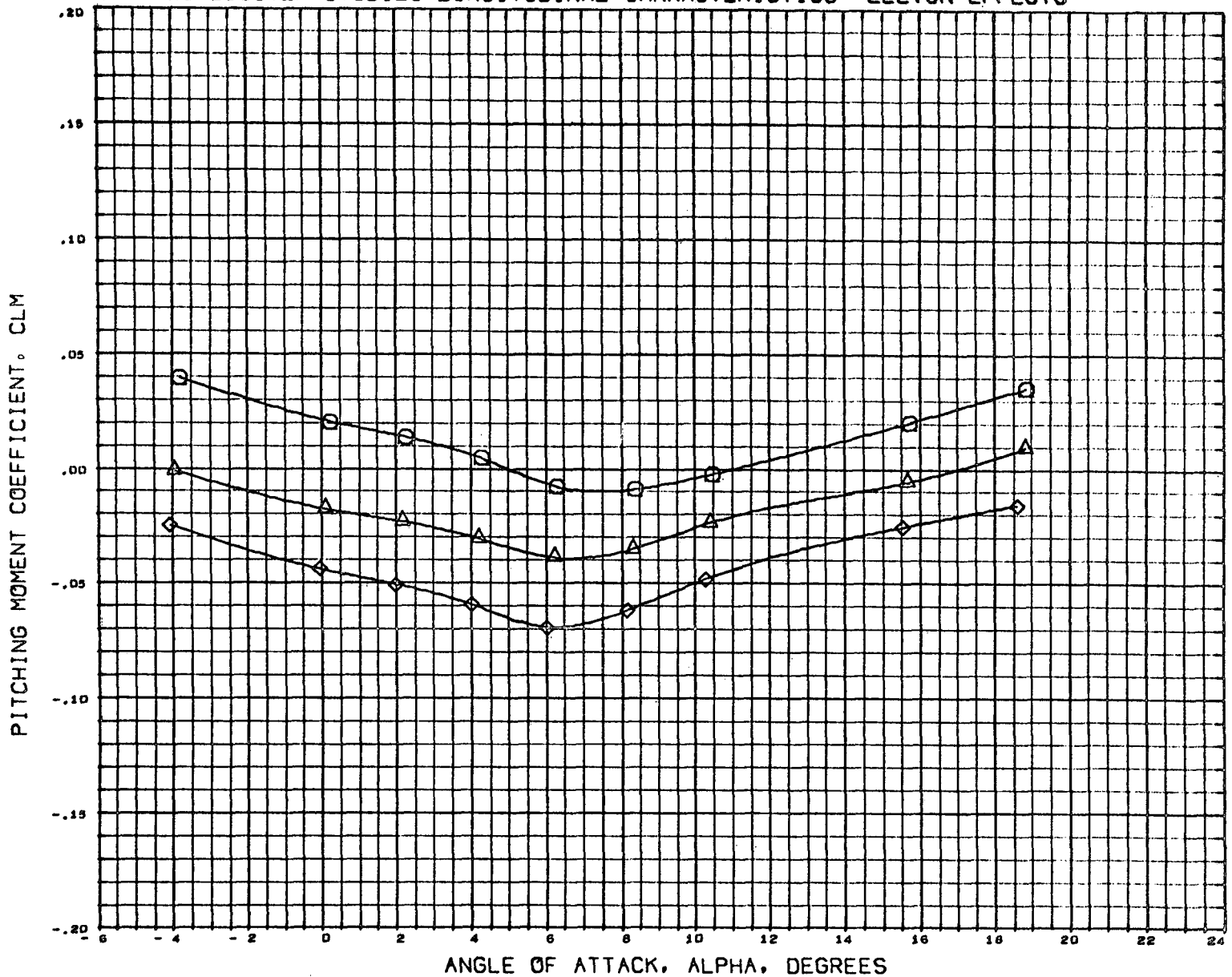
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 SQ.FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.704

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

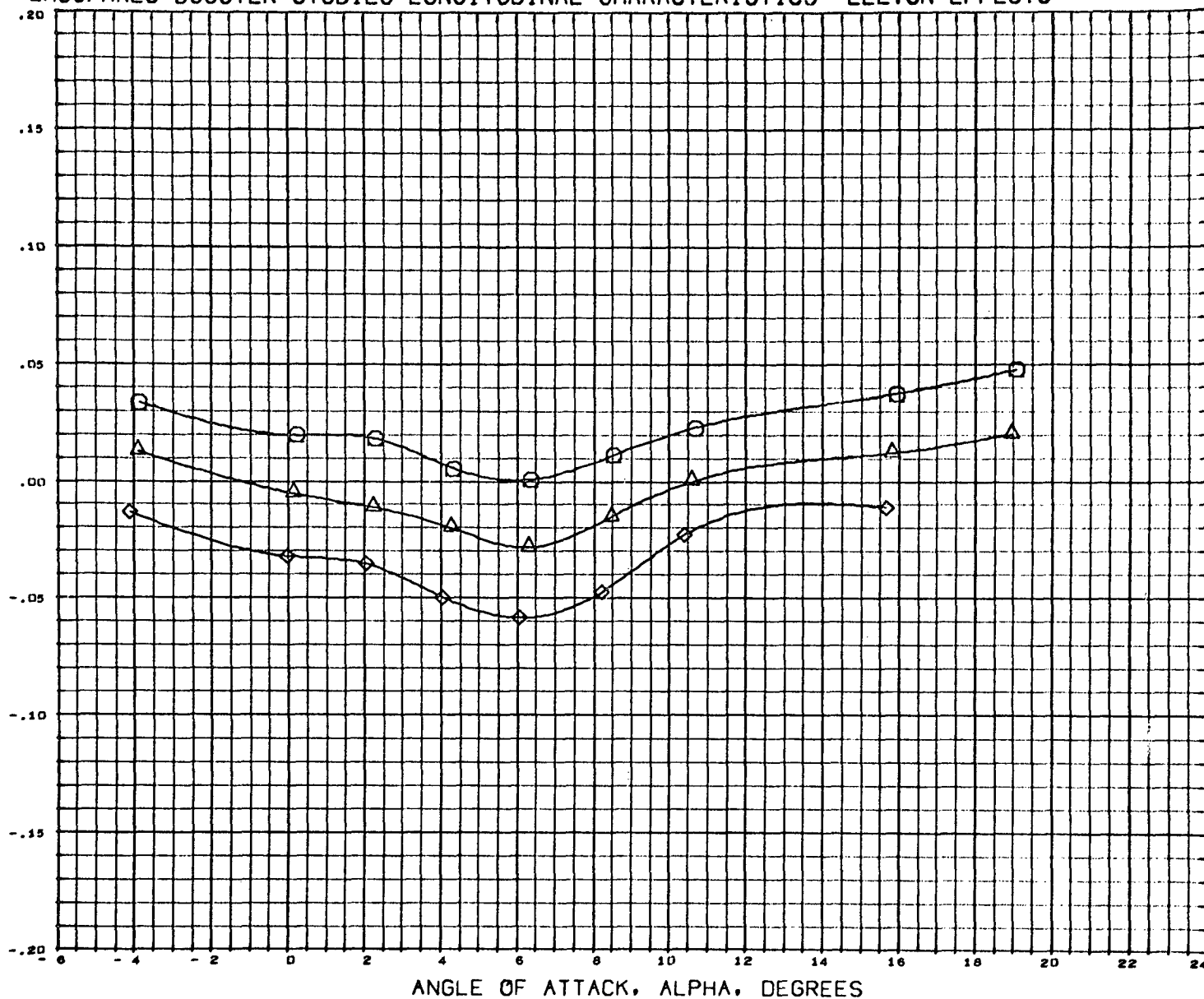


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 SQ.FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
						XMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.802

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

PITCHING MOMENT COEFFICIENT, CLM

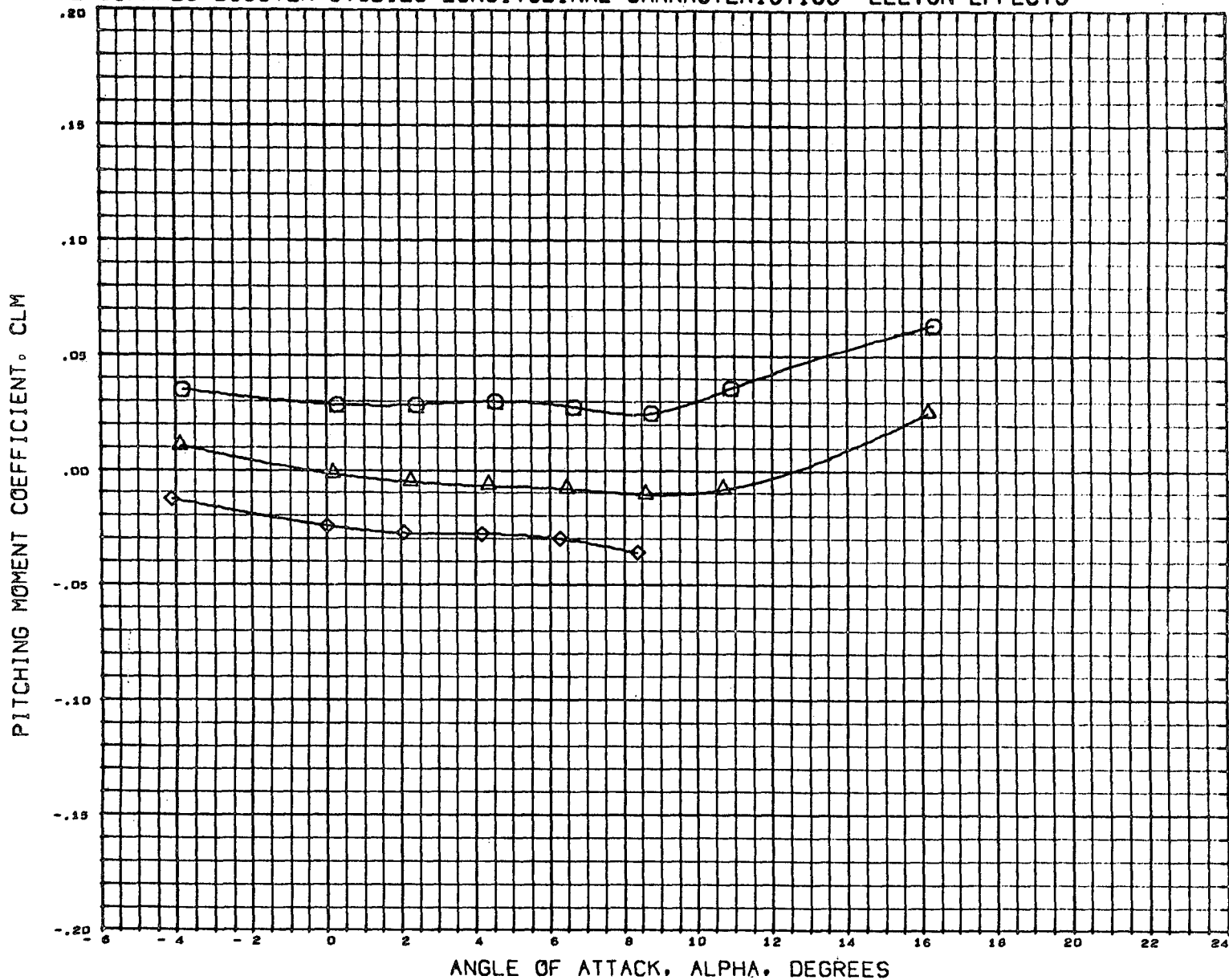


ANGLE OF ATTACK, ALPHA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 SQ.FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LRCP	3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.901

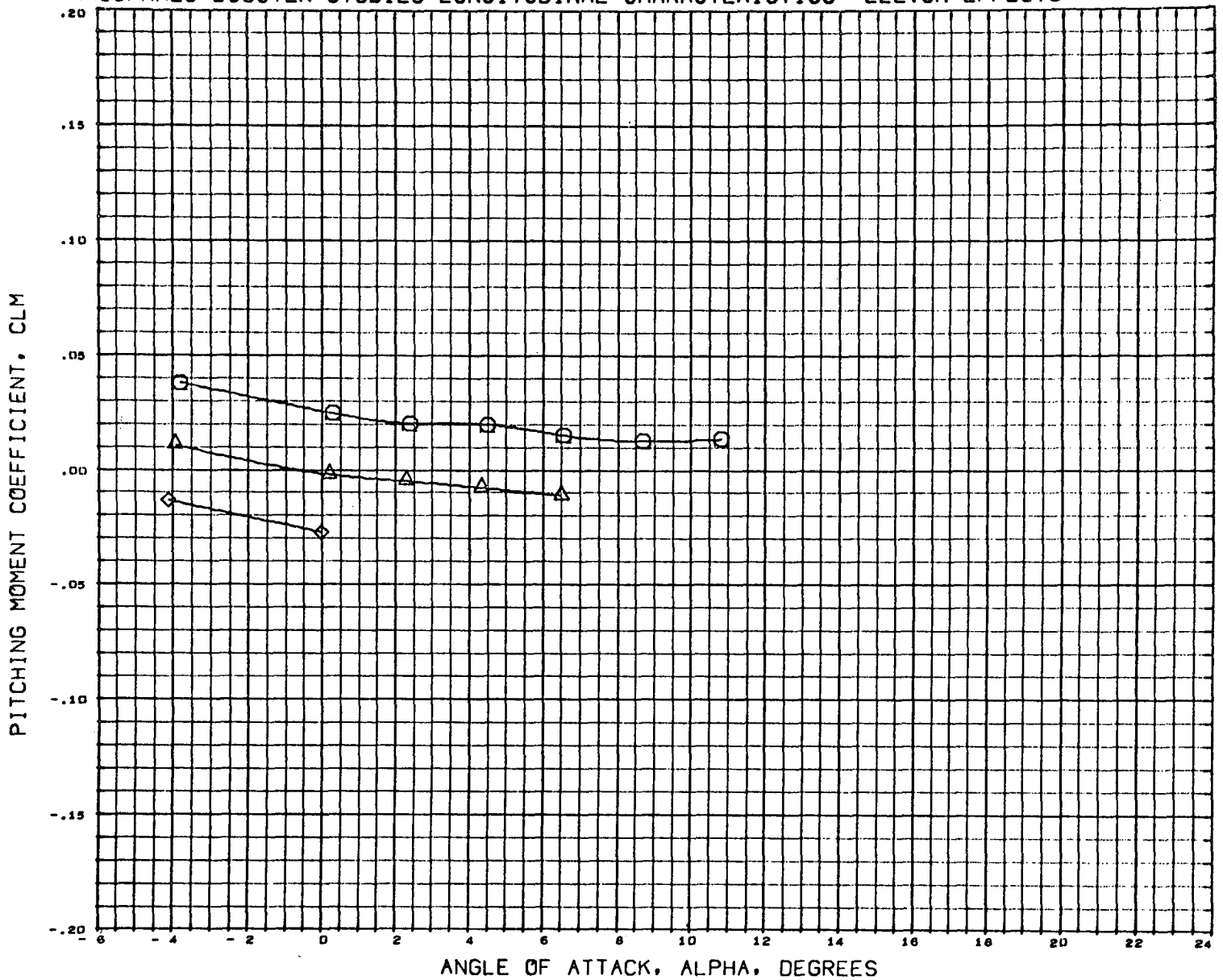
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 90.FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.999

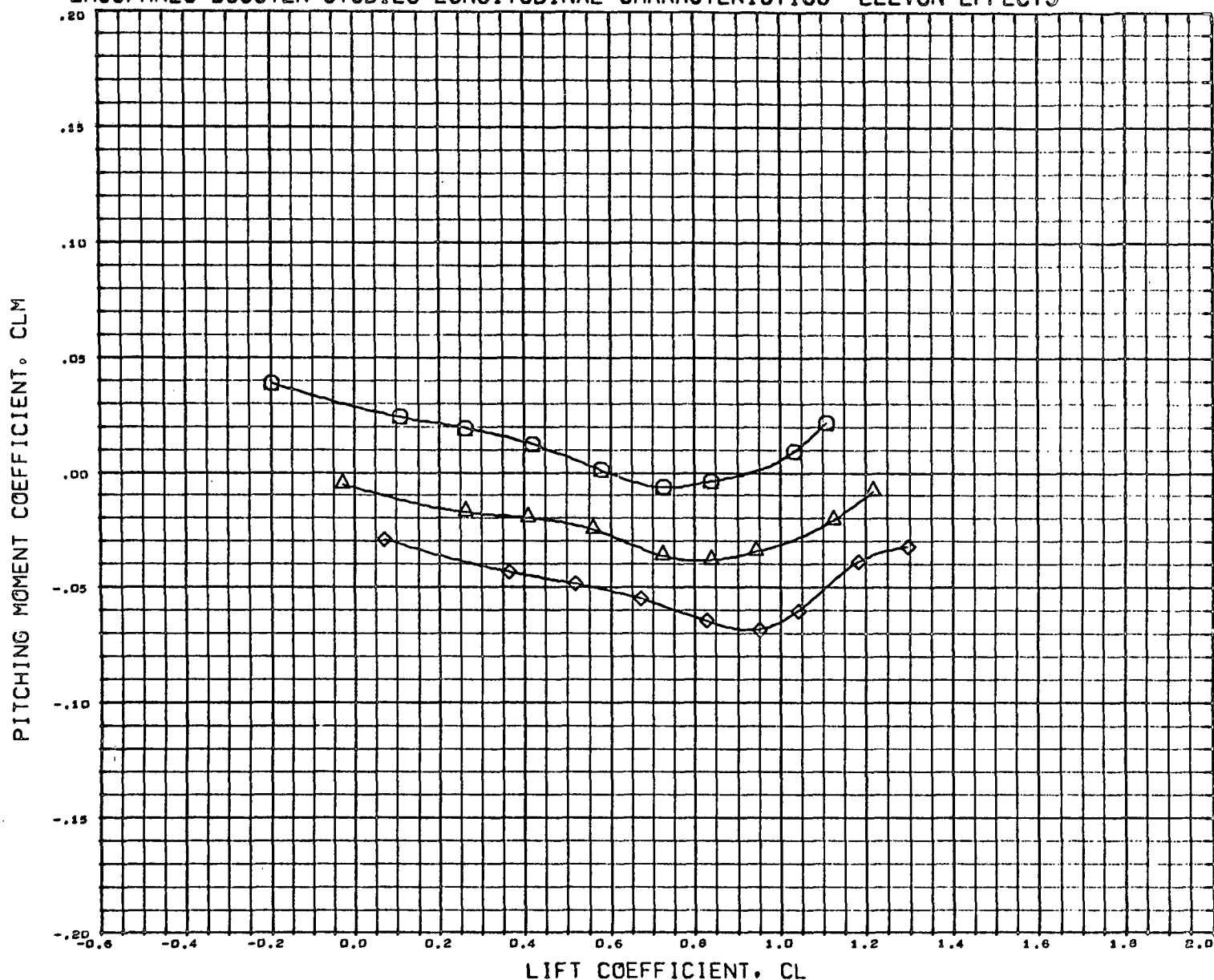
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 SQ.FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 1.128

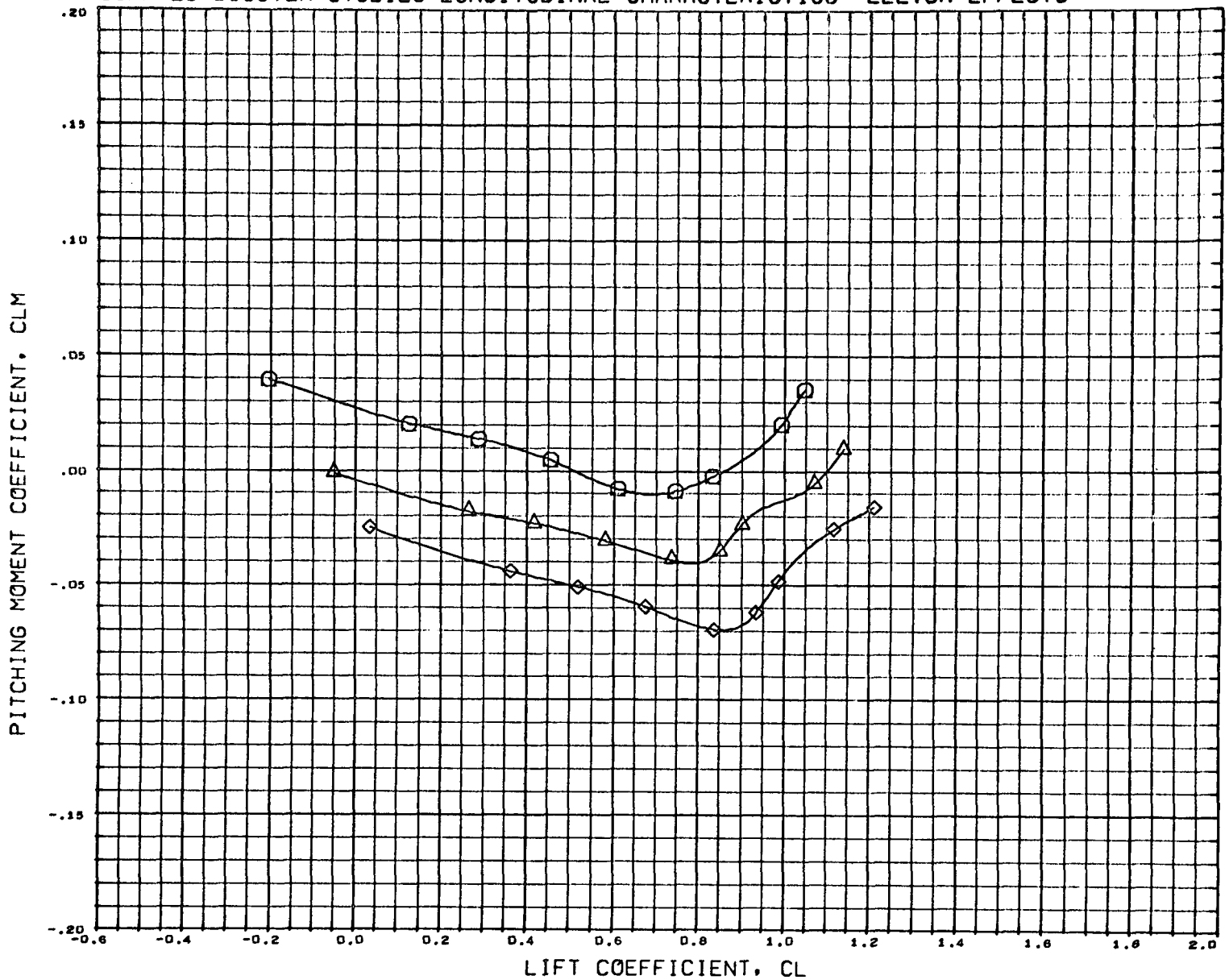
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 SQ.FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.900	10.000	LREF	3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.704

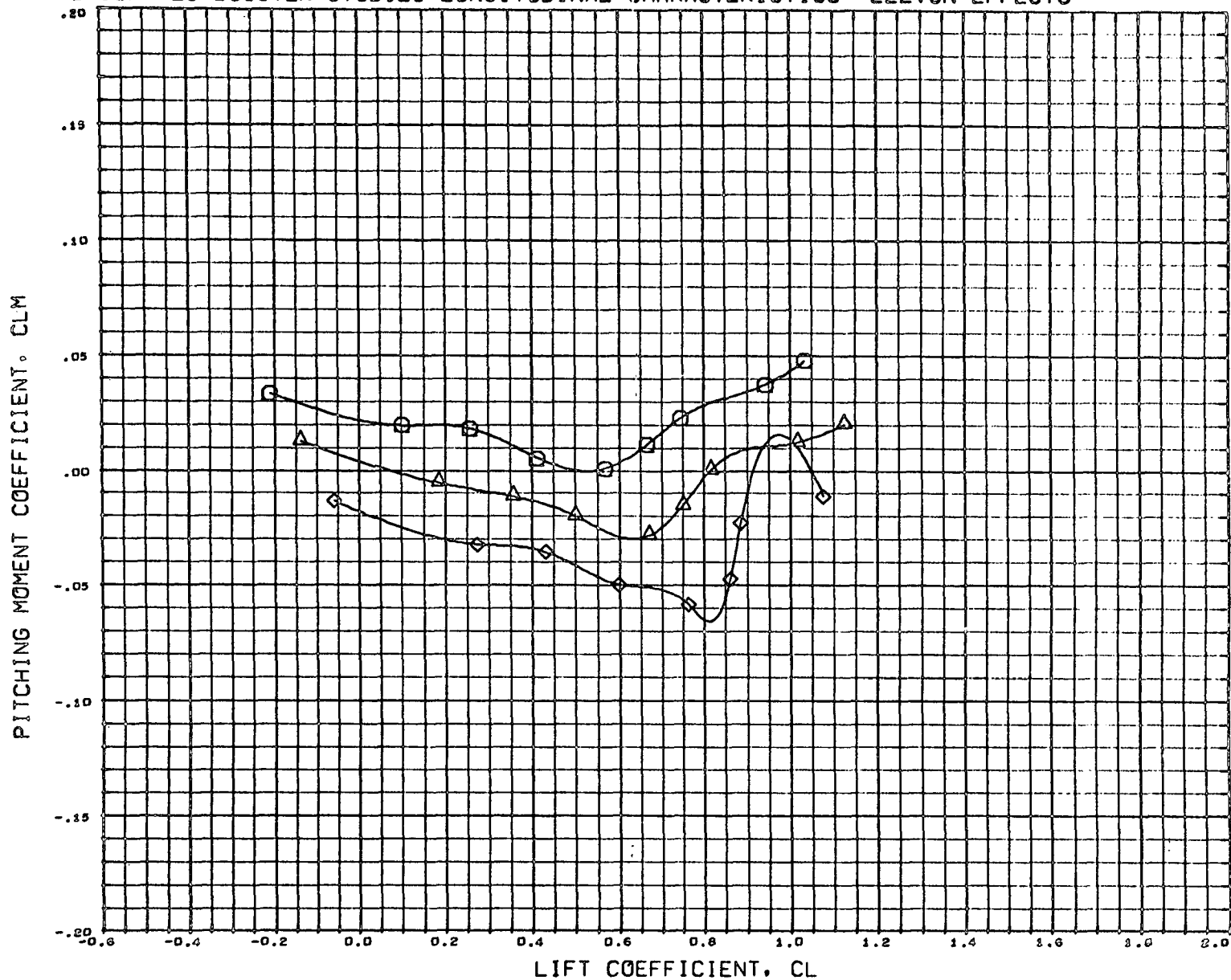
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 89.FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.802

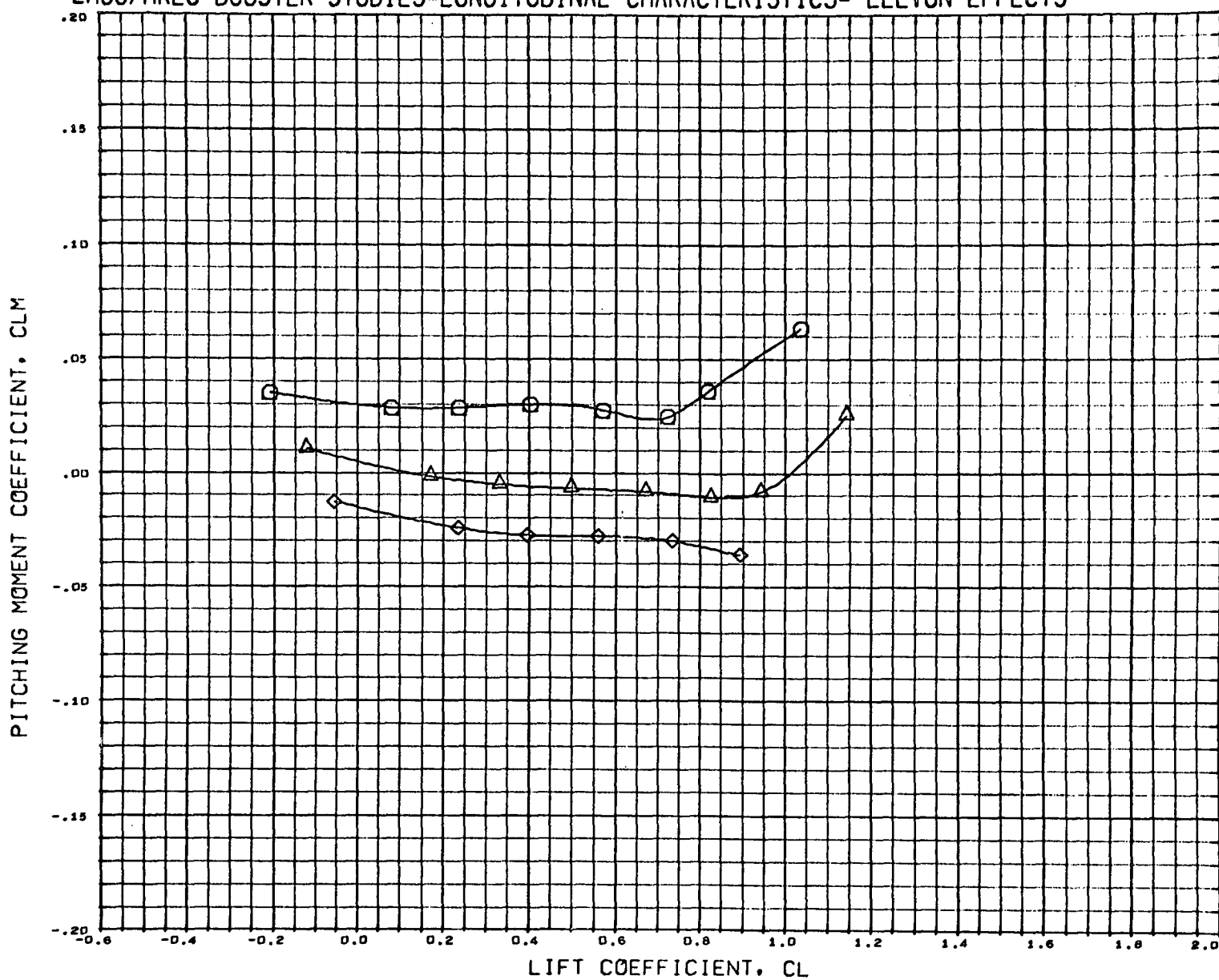
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 89.FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
						XMRRP	2.5950 FEET
						YMRRP	0.0000 FEET
						ZMRRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.901

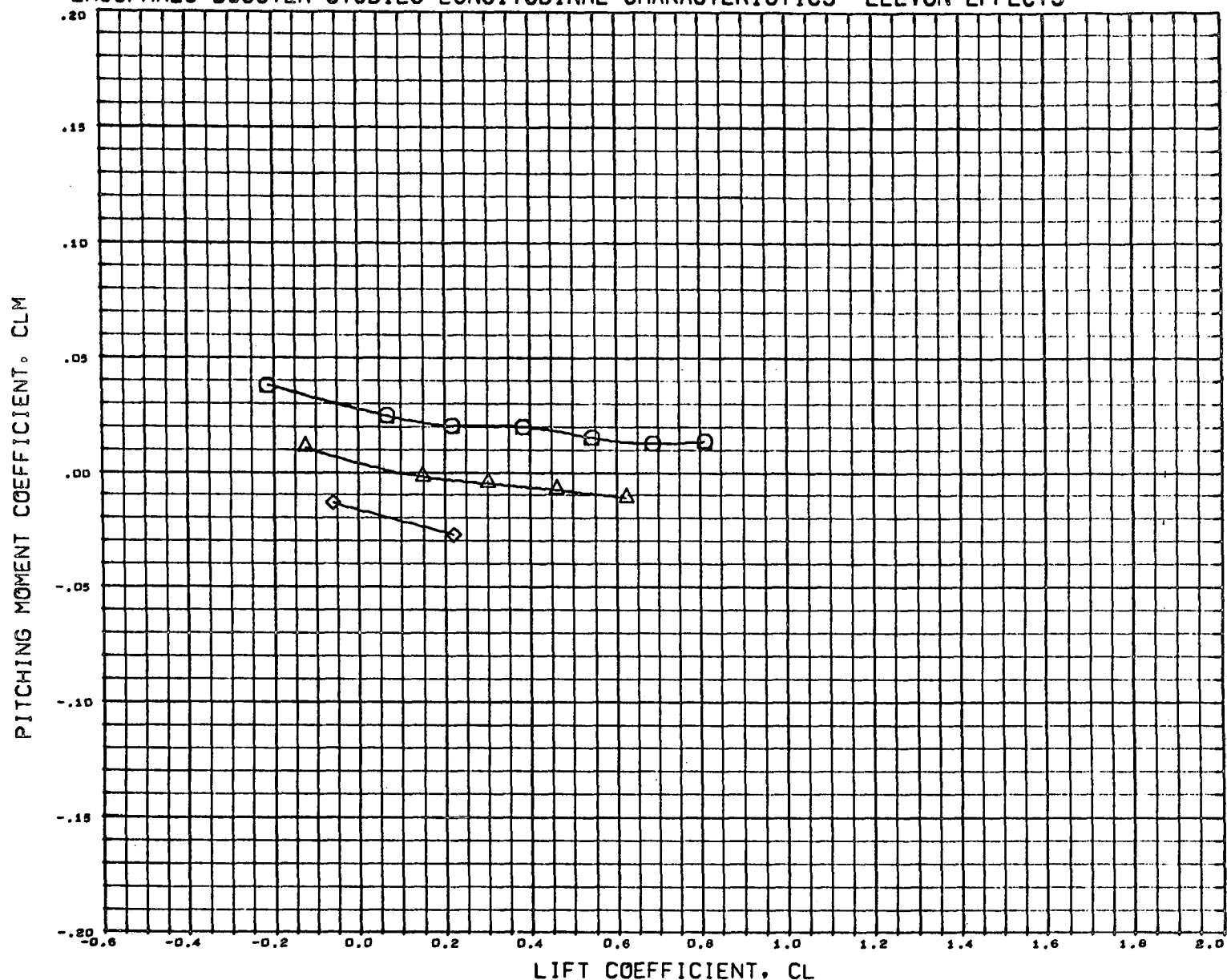
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 SQ.FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.999

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 SQ.FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 1.128

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL STATIC DERIVATIVES - ELEVONS



MACH NUMBER

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 SQ.FT.
(RN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0107 FEET
						SCALE	0.0150 SCALE

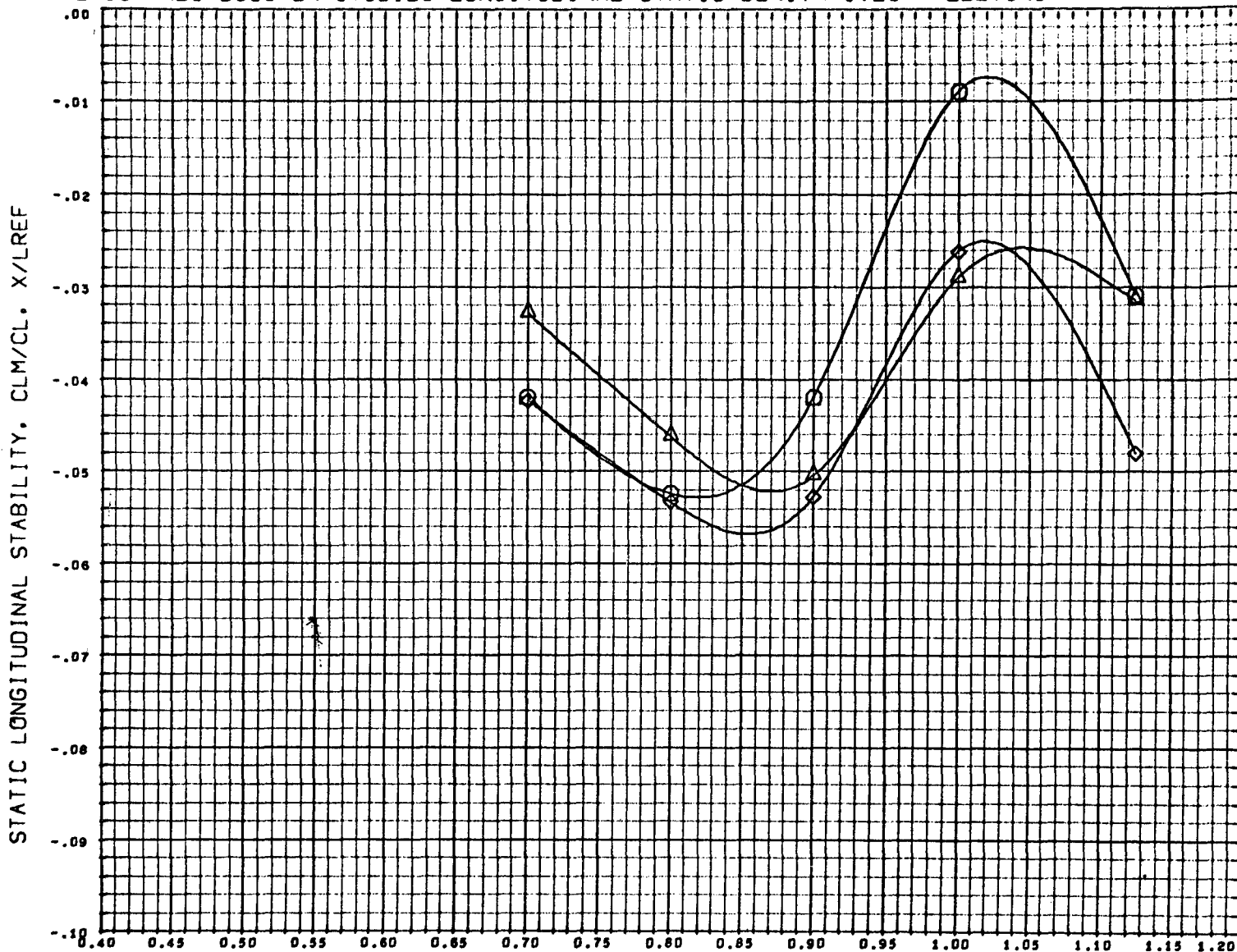
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL STATIC DERIVATIVES - ELEVONS



MACH NUMBER

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3021)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 38. FT.
(RN3025)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530 FEET
(RN3029)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL STATIC DERIVATIVES - ELEVONS



DATA SET SYMBOL
(TN3021)
(TN3025)
(TN3029)

CONFIGURATION DESCRIPTION
NSRDC-3210, NSFC/LMSC BOOSTER B1C2F2W1V1
NSRDC-3210, NSFC/LMSC BOOSTER B1C2F2W1V1
NSRDC-3210, NSFC/LMSC BOOSTER B1C2F2W1V1

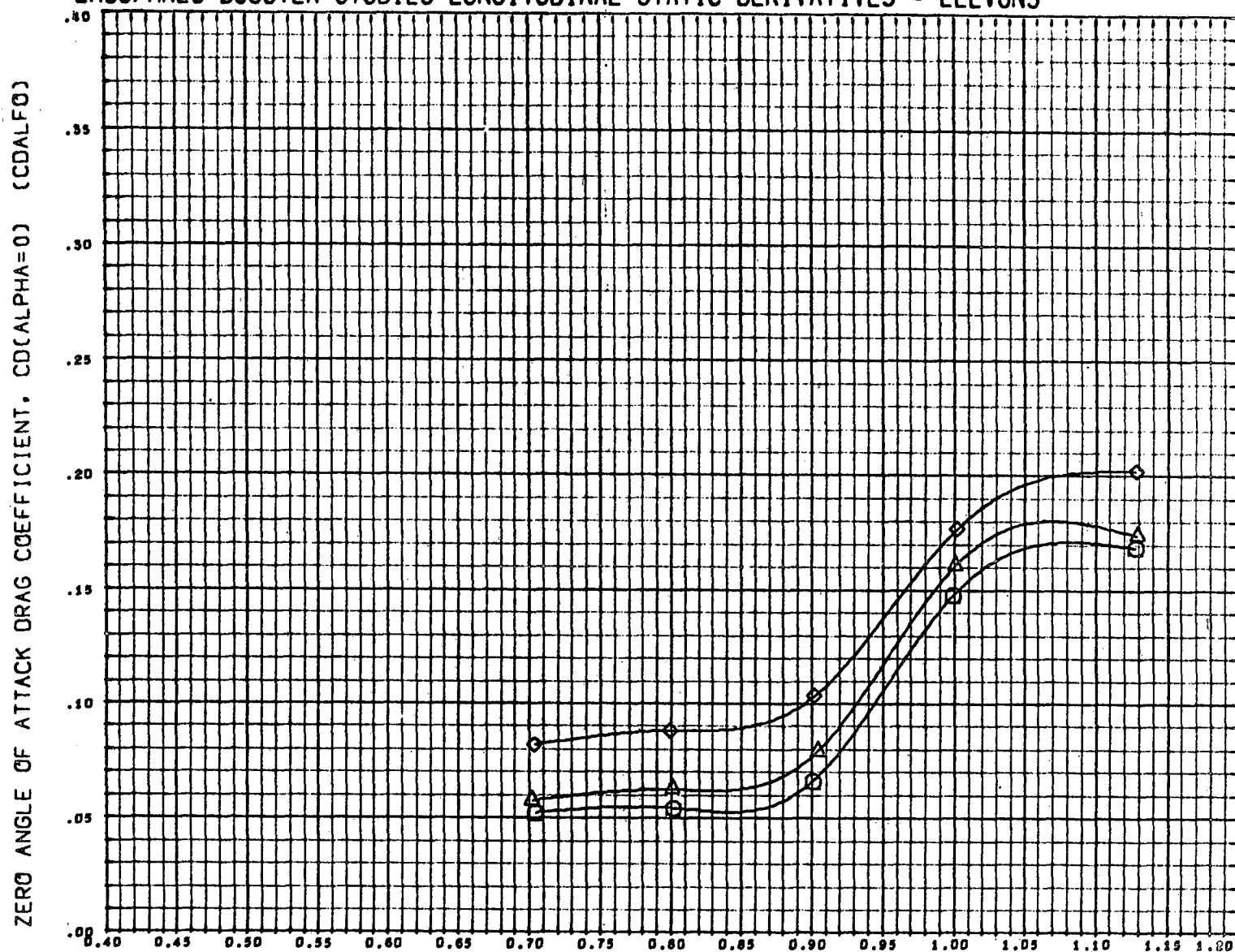
MACH NUMBER

ELEVTR	AILRON	RUDDER	CANARD
0.000	0.000	0.000	10.000
10.000	0.000	0.000	10.000
20.000	0.000	0.000	10.000

REFERENCE INFORMATION		
SREF	1.3550	89. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.3950	FEET
YMRP	0.0000	FEET
ZMRP	0.0187	FEET
SCALE	0.0150	SCALE

P-703

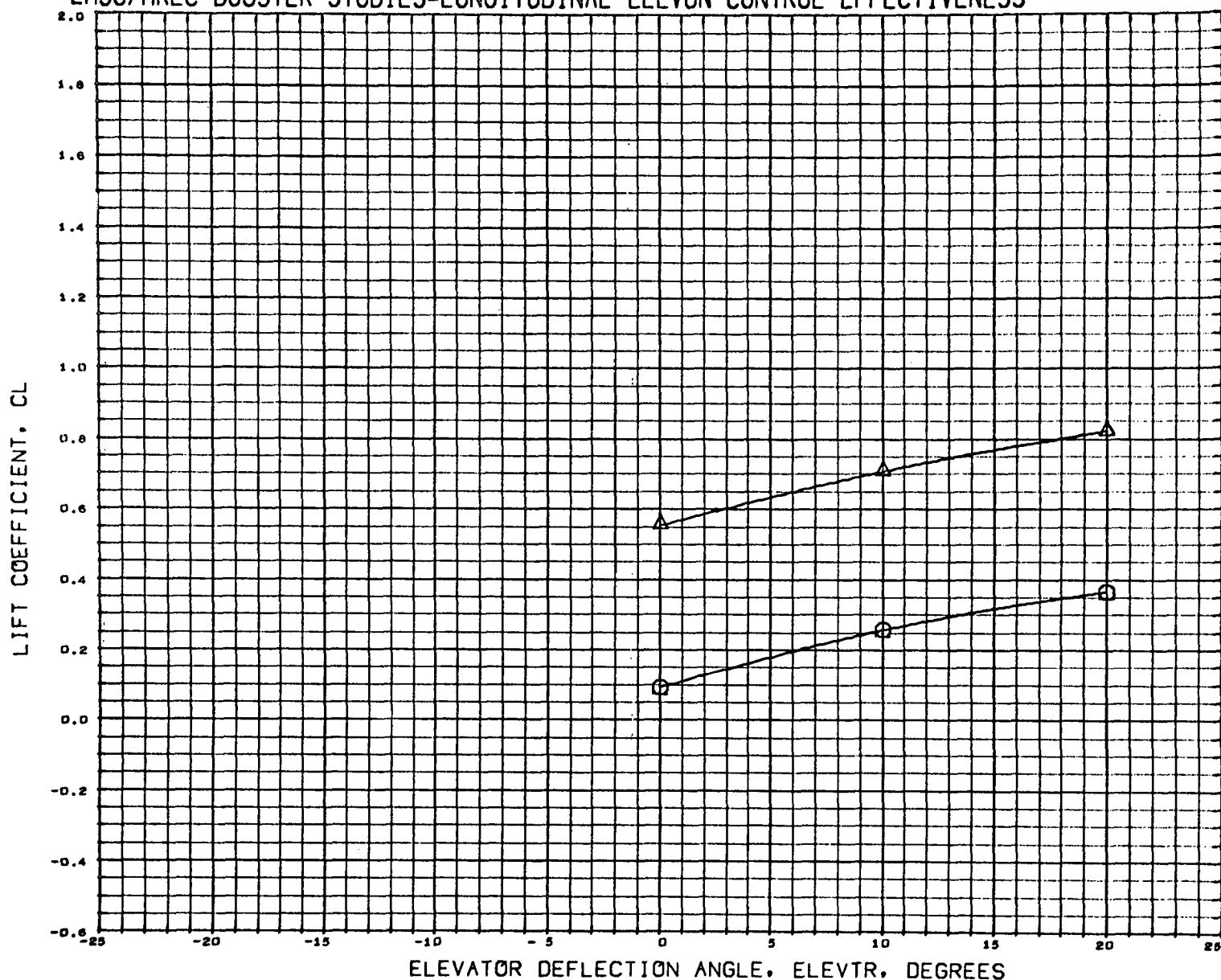
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL STATIC DERIVATIVES - ELEVONS



MACH NUMBER

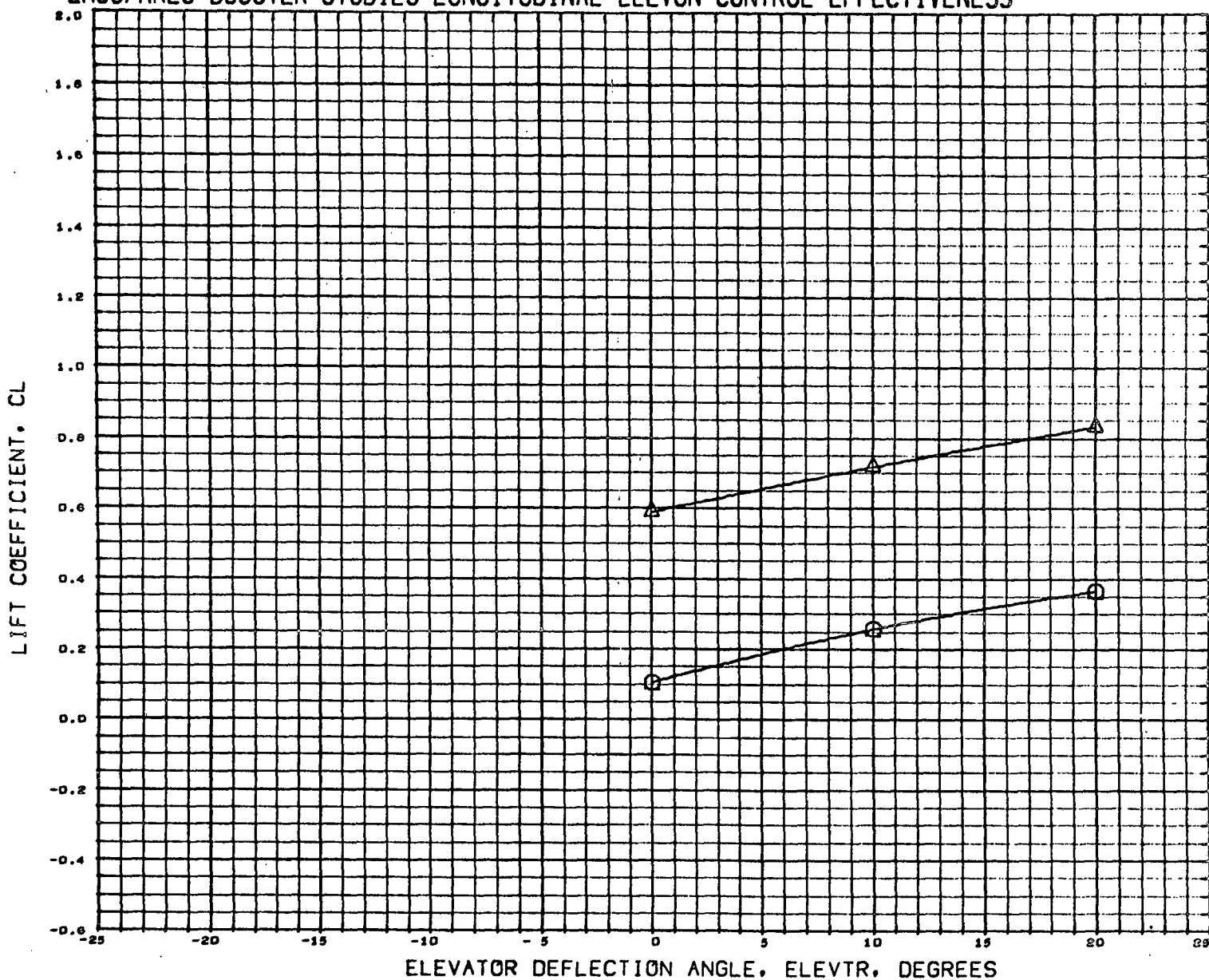
DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(BN3021)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	10.000	SREF	1.3550 SQ.FT.
(BN3025)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	10.000	0.000	0.000	10.000	LREF	3.4530 FEET
(BN3029)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	20.000	0.000	0.000	10.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



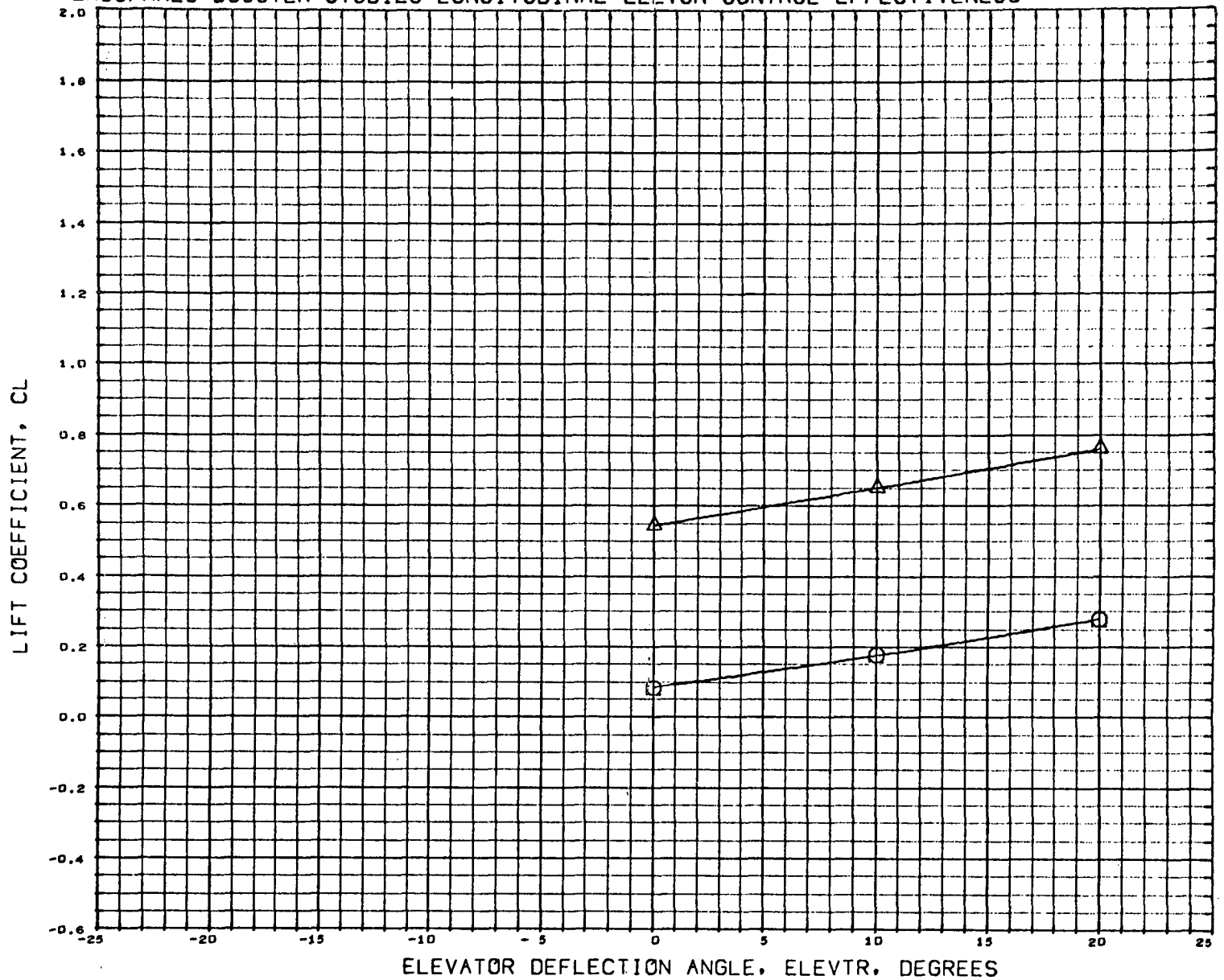
SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE			REFERENCE INFORMATION		
O Δ	0.000	<u>MACH</u>	0.700	BETA	- 0.032	DATASET	ELEVTR		SREF	1.3550	89.FT.
	6.000	INCIDC	3.000	INCIDW	0.000	NN3021	0.000	NN3025	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3029	20.000		BREF	3.4530	FEET
		CANARD	10.000	RUDDER	0.000				XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000				YMRP	0.0000	FEET
		DATA HIST. CODE	1						ZMRP	0.0187	FEET
									SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE				REFERENCE INFORMATION		
O	0.000	MACH	0.800	BETA	- 0.032	DATASET	ELEVTR	DATASET	ELEVTR	SREF	1.3550	80.FT.
Δ	6.000	INCIDC	3.000	INCIDW	0.000	NN3021	0.000	NN3025	10.000	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3029	20.000			BREF	3.4530	FEET
		CANARD	10.000	RUDDER	0.000					XMRP	2.5950	FEET
		WINGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
		DATA HIST. CODE	I							ZMRP	0.0187	FEET
										SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



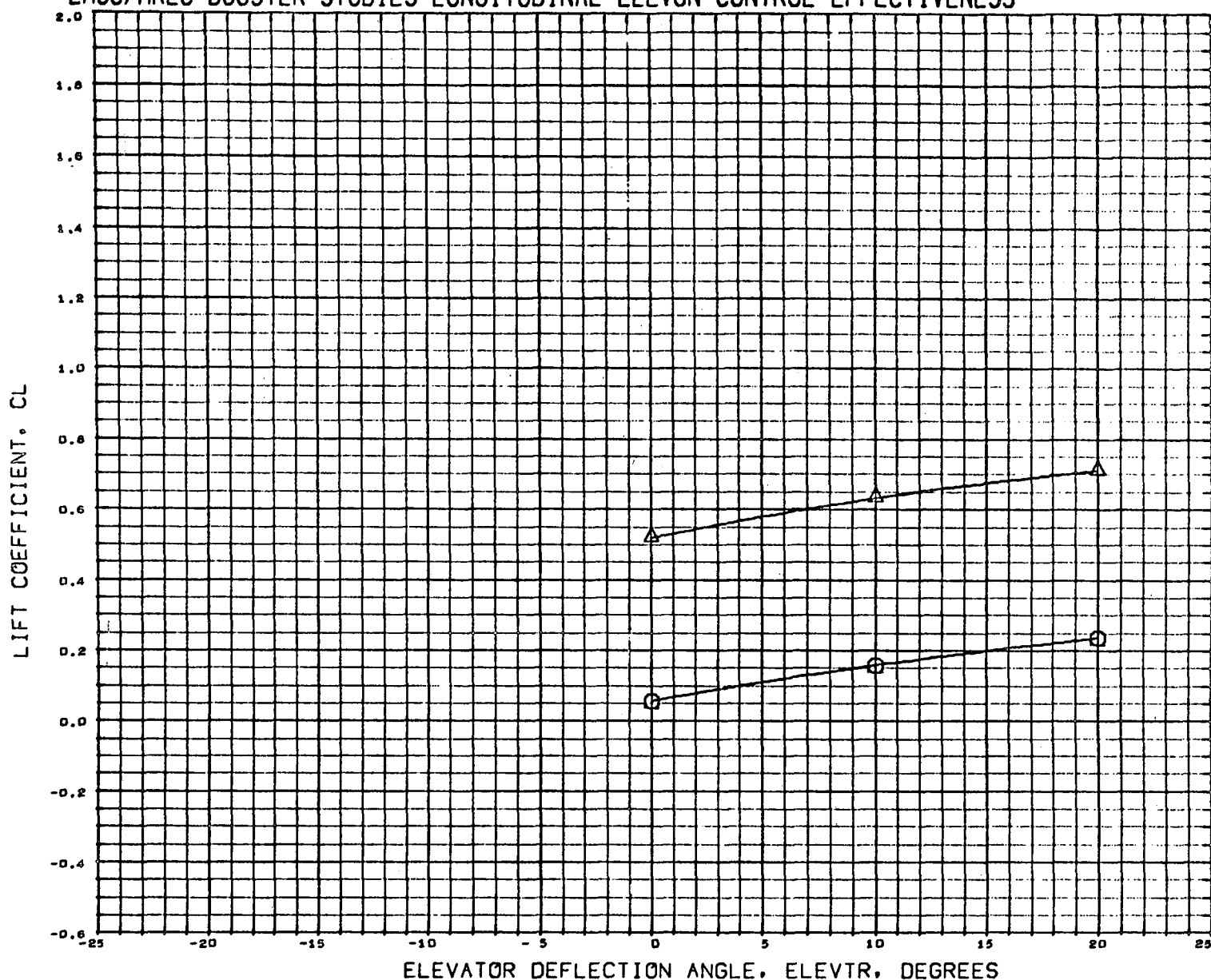
SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE				REFERENCE INFORMATION		
O	0.000	MACH	0.900	BETA	- 0.032	DATASET	ELEVTR	DATASET	ELEVTR	SREF	1.3550	SQ.FT.
Δ	6.000	INCIDC	3.000	INCIDW	0.000	NN3021	0.000	NN3025	10.000	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3029	20.000			BREF	3.4530	FEET
		CANARD	10.000	RUDDER	0.000					XMRP	2.5950	FEET
		WINGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
		DATA HIST. CODE	I							ZMRP	0.0187	FEET
										SCALE	0.0150	SCALE

NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1

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LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



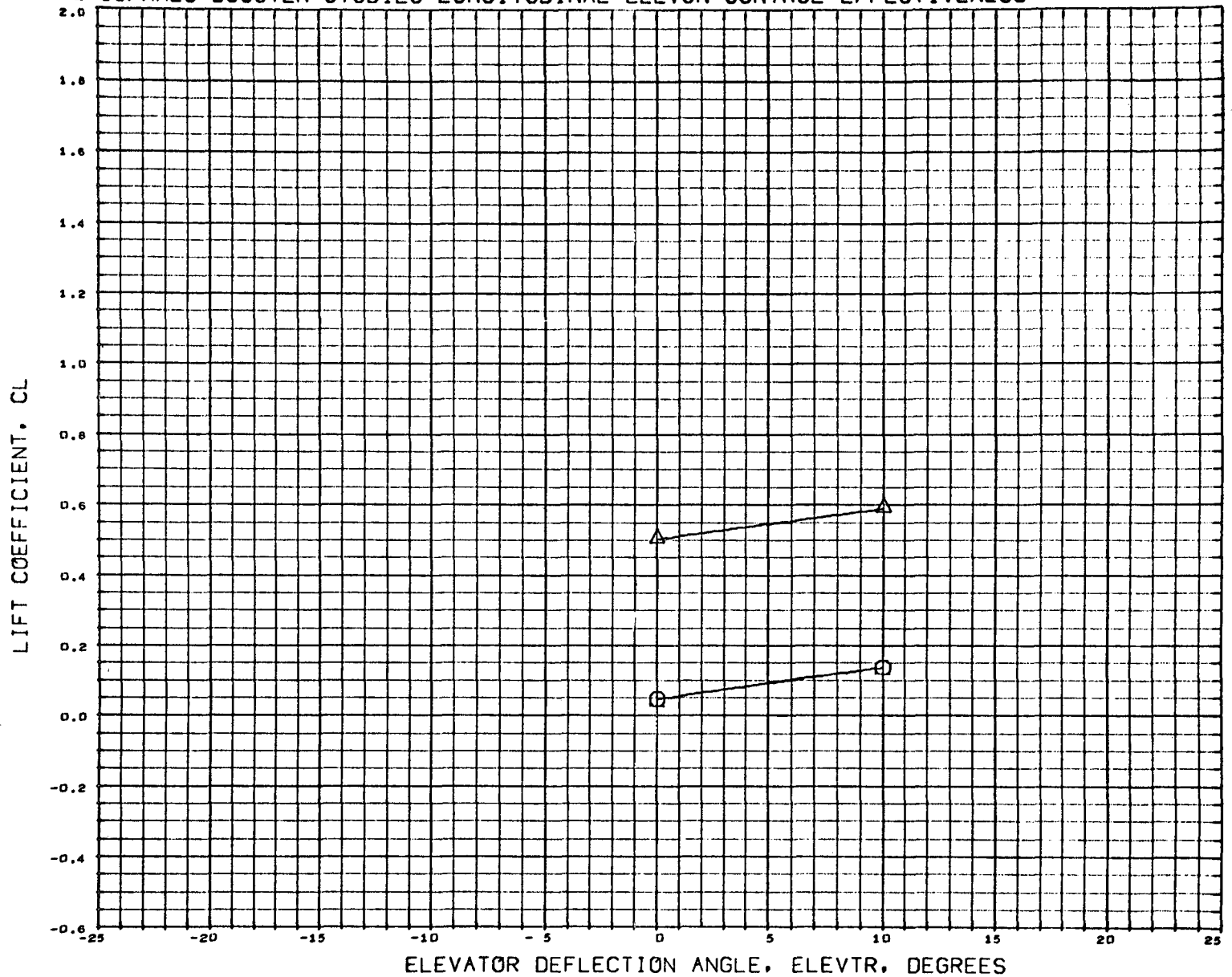
ELEVATOR DEFLECTION ANGLE, ELEVTR, DEGREES

SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE			REFERENCE INFORMATION		
O	0.000	MACH	1.000	BETA	- 0.032	DATASET	ELEVTR		SREF	1.3550	SQ.FT.
	6.000	INCIDC	3.000	INCIDW	0.000	NN3021	0.000	NN3025	LREF	3.4530	FEET
Δ		MSFLOW	0.000	AILRON	0.000	NN3029	20.000		BREF	3.4530	FEET
		CANARD	10.000	RUDDER	0.000				XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000				YMRP	0.0000	FEET
		DATA HIST. CODE 1							ZMRP	0.0187	FEET
									SCALE	0.0150	SCALE

NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1

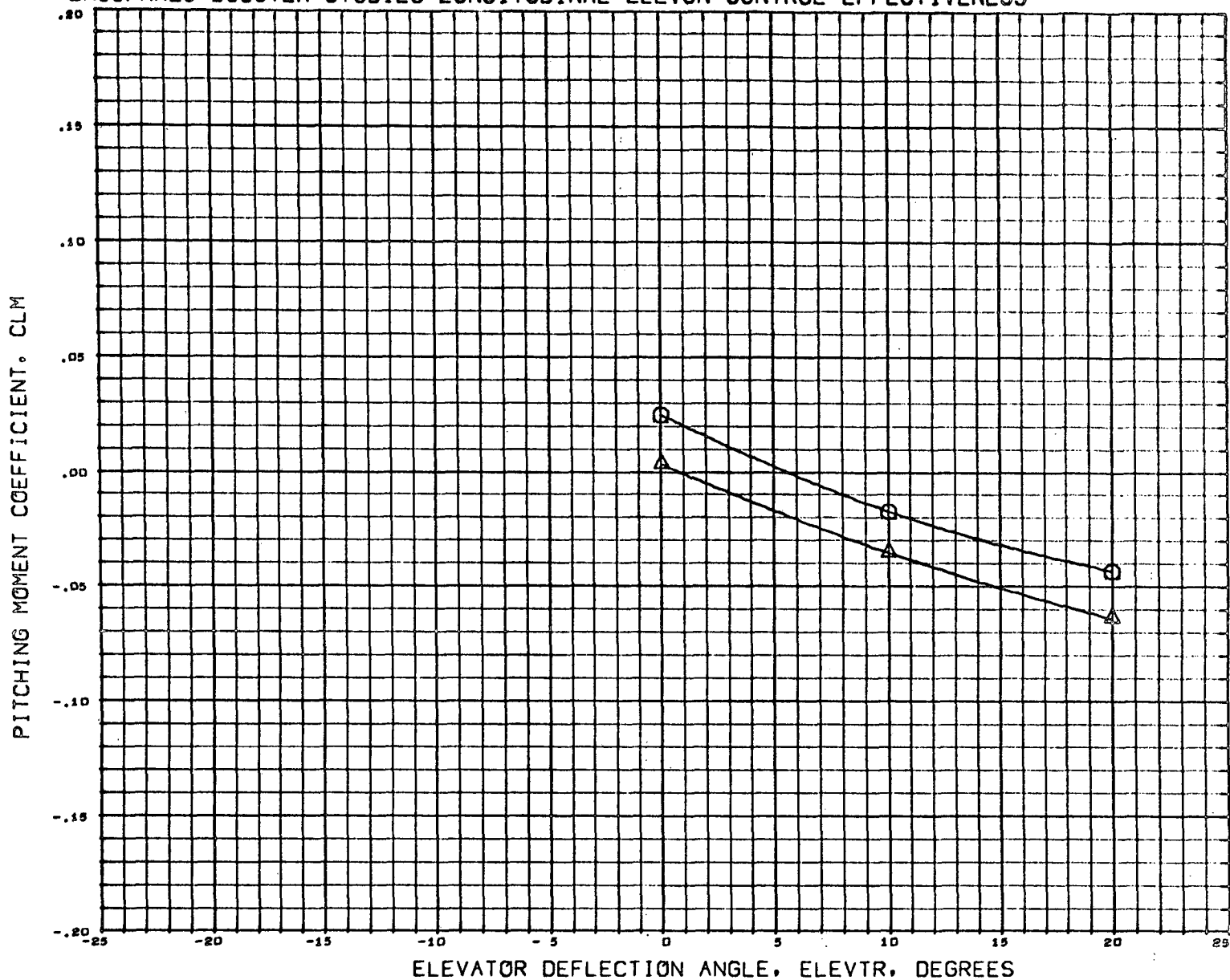
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LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE				REFERENCE INFORMATION		
○	0.000	MACH	1.125	BETA	- 0.032	DATASET	ELEVTR	DATASET	ELEVTR	SREF	1.3550	30.FT.
△	6.000	INCIDC	3.000	INCIDW	0.000	NN3021	0.000	NN3025	10.000	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3029	20.000			BREF	3.4530	FEET
		CANARD	10.000	RUDDER	0.000					YMRP	2.5950	FEET
		WINGPOS	1.000	CNDPOS	1.000					ZMRP	0.0000	FEET
		DATA HIST. CODE	I							SCALE	0.0187	FEET
											0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS

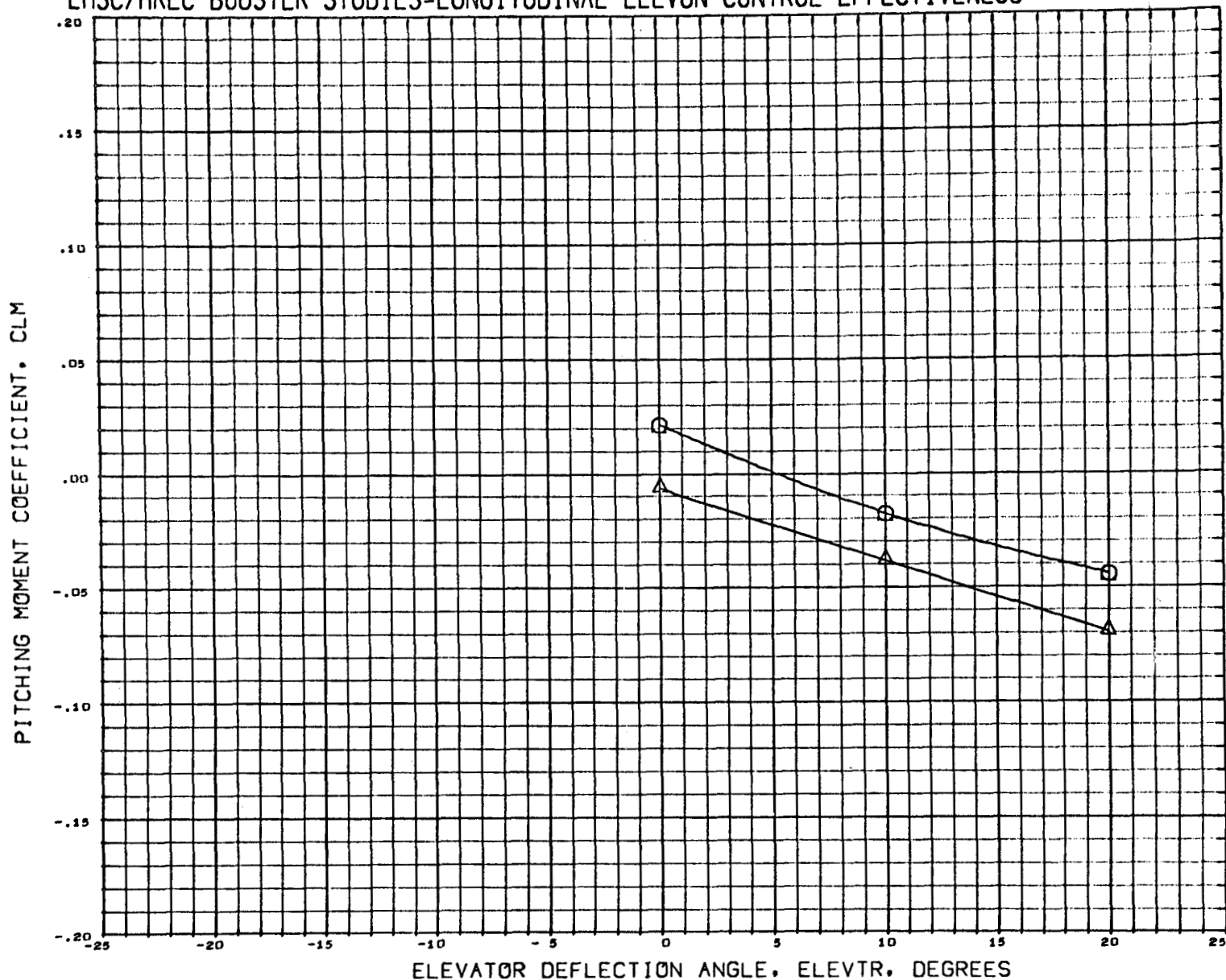


SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE				REFERENCE INFORMATION		
O	0.000	MACH	0.700	BETA	- 0.032	DATASET	ELEVTR	DATASET	ELEVTR	SREF	1.3550	80.FT.
Δ	6.000	INCIDC	3.000	INCIDW	0.000	NN3021	0.000	NN3025	10.000	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3029	20.000			BREF	3.4530	FEET
		CANARD	10.000	RUDDER	0.000					YMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
		DATA HIST. CODE	I							ZMRP	0.0107	FEET
										SCALE	0.0150	SCALE

NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1

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LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE			REFERENCE INFORMATION		
O	0.000	MACH	0.800	BETA	- 0.032	DATASET	ELEVTR	DATASET	ELEVTR	SREF	1.3550 SQ.FT.
Δ	6.000	INCIDC	3.000	INCIDW	0.000	NN3021	0.000	NN3025	10.000	LREF	3.4530 FEET
		MSFLOW	0.000	AILRON	0.000	NN3029	20.000			BREF	3.4530 FEET
		CANARD	10.000	RUDDER	0.000					XMRP	2.5950 FEET
		WNGPOS	1.000	CNDPOS	1.000					YMRP	0.0000 FEET
										ZMRP	0.0187 FEET
										SCALE	0.0150 SCALE
		DATA HIST. CODE	1								

NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1

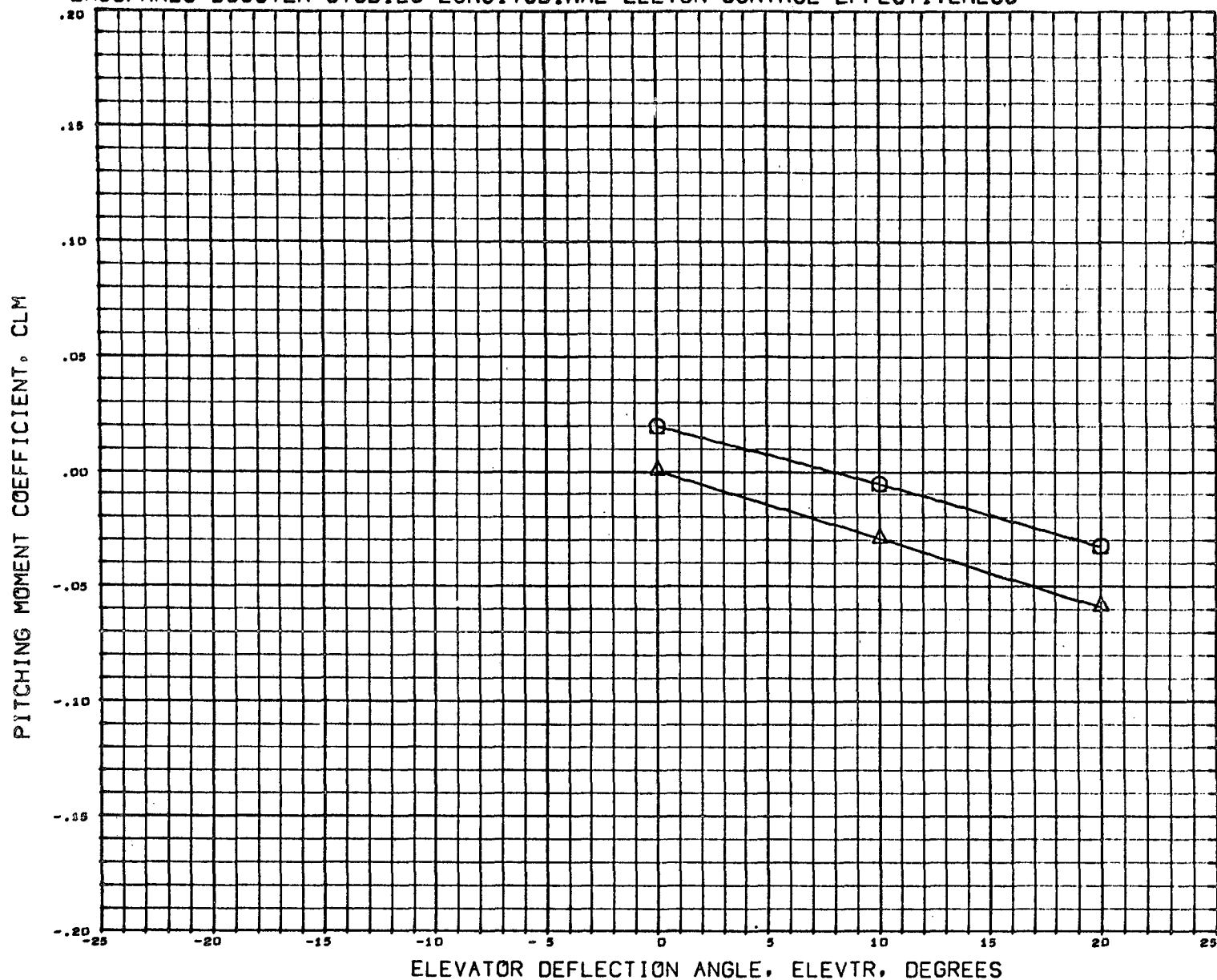
(NN3021)

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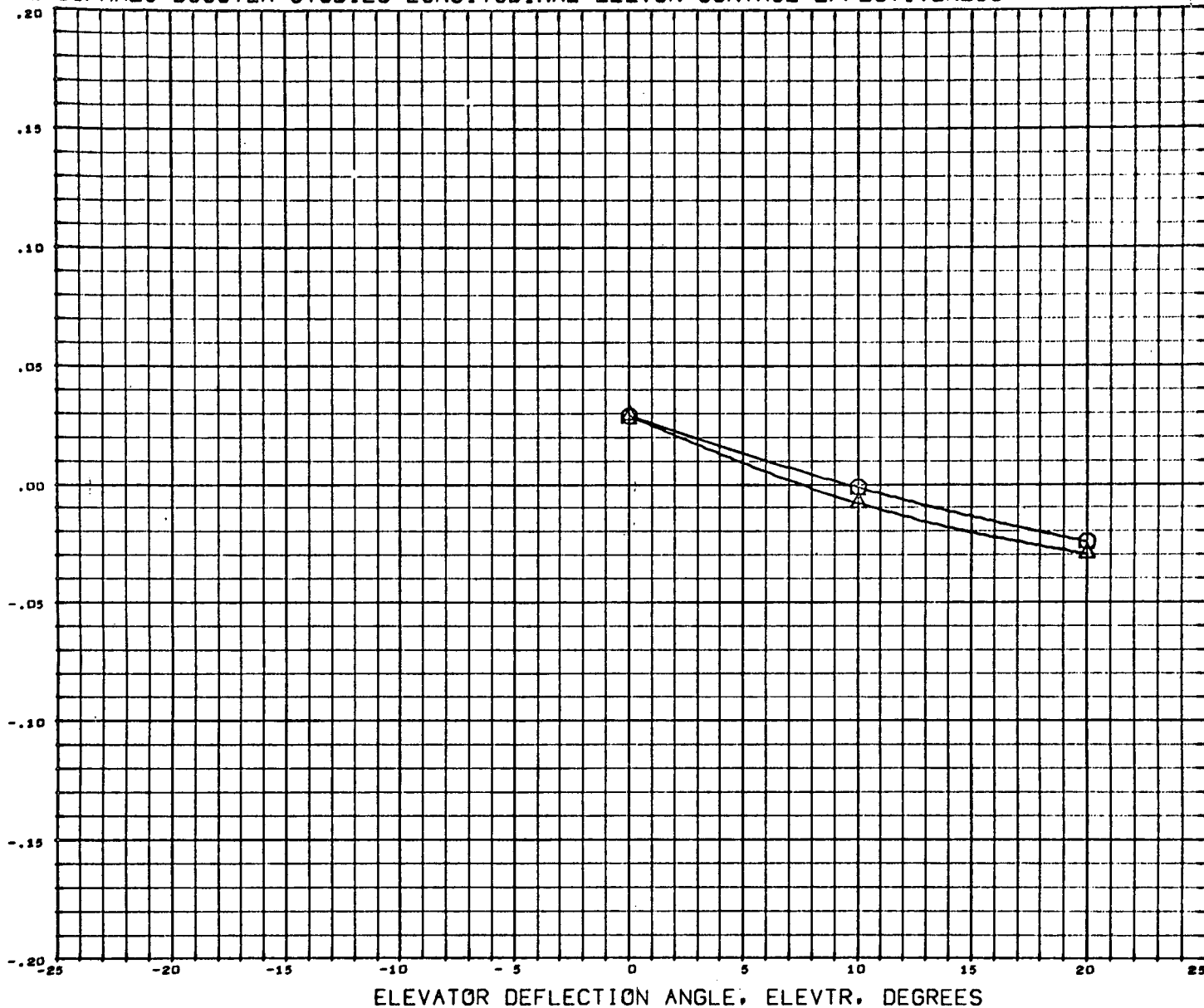
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES					DATA SOURCE			REFERENCE INFORMATION		
○	0.000	<u>MACH</u>	0.900	BETA	- 0.032	DATASET	ELEVTR	DATASET	ELEVTR	SREF	1.3550	SQ.FT.
△	6.000	INCIDC	3.000	INCIDW	0.000	NN3021	0.000	NN3025	10.000	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3029	20.000			BREF	3.4530	FEET
		CANARD	10.000	RUDDER	0.000					XMRP	2.5950	FEET
		WINGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
										ZMRP	0.0187	FEET
										SCALE	0.0150	SCALE
		DATA HIST. CODE 1										

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS

PITCHING MOMENT COEFFICIENT, CLM



ELEVATOR DEFLECTION ANGLE, ELEVTR, DEGREES

SYMBOL	ALPHA	PARAMETRIC VALUES					DATA SOURCE			REFERENCE INFORMATION		
O Δ	0.000	<u>MACH</u>	1.000	BETA	- 0.032	DATASET	ELEVTR	DATASET	ELEVTR	SREF	1.3550	SQ.FT.
	6.000	INCIDC	3.000	INCIDW	0.000	NN3021	0.000	NN3025	10.000	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3029	20.000			BREF	3.4530	FEET
		CANARD	10.000	RUDDER	0.000					XMRP	2.5950	FEET
		WINGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
										ZMRP	0.0187	FEET
										SCALE	0.0150	SCALE
		DATA HIST. CODE I										

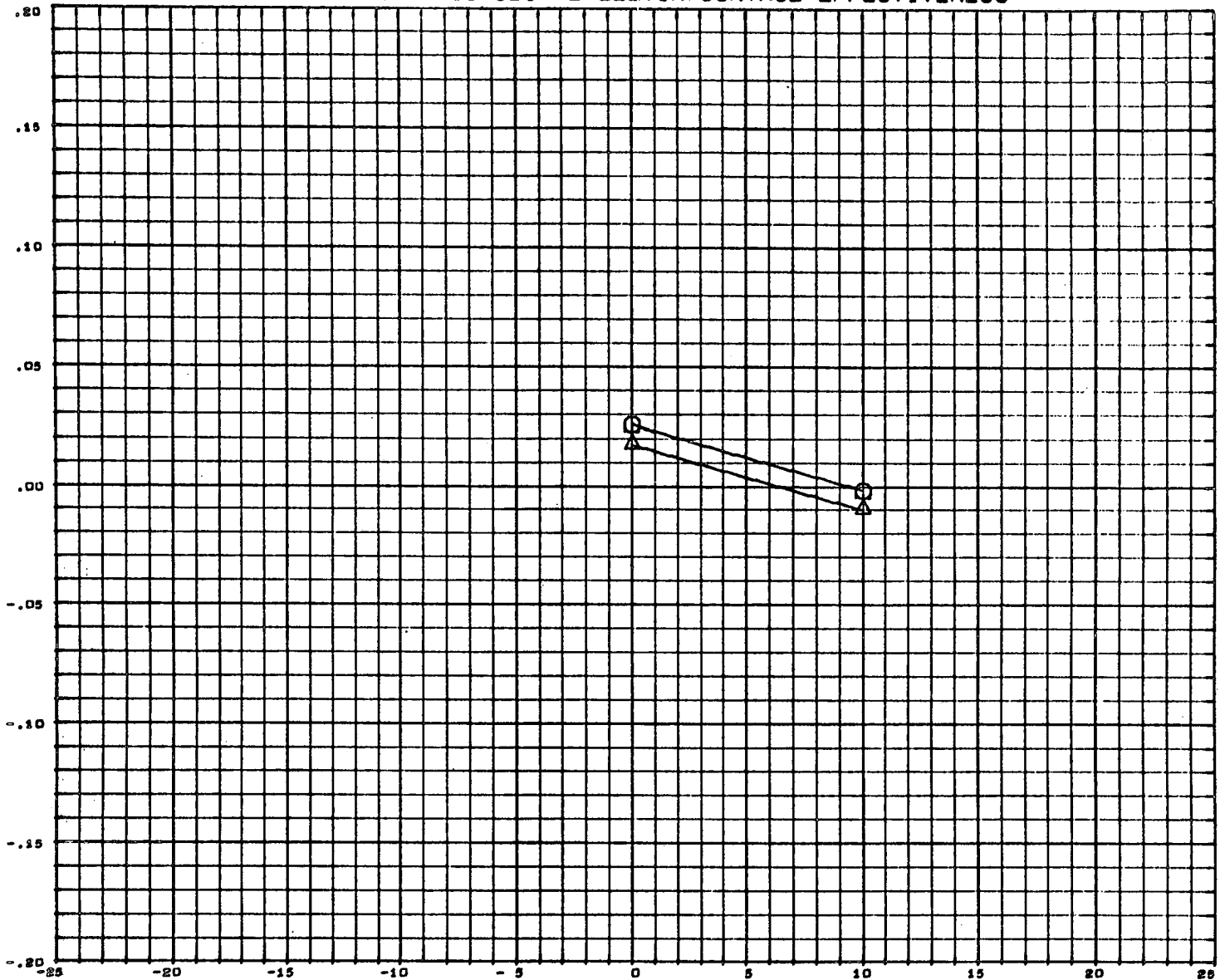
NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1

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LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS

PITCHING MOMENT COEFFICIENT, CLM



ELEVATOR DEFLECTION ANGLE, ELEVTR, DEGREES

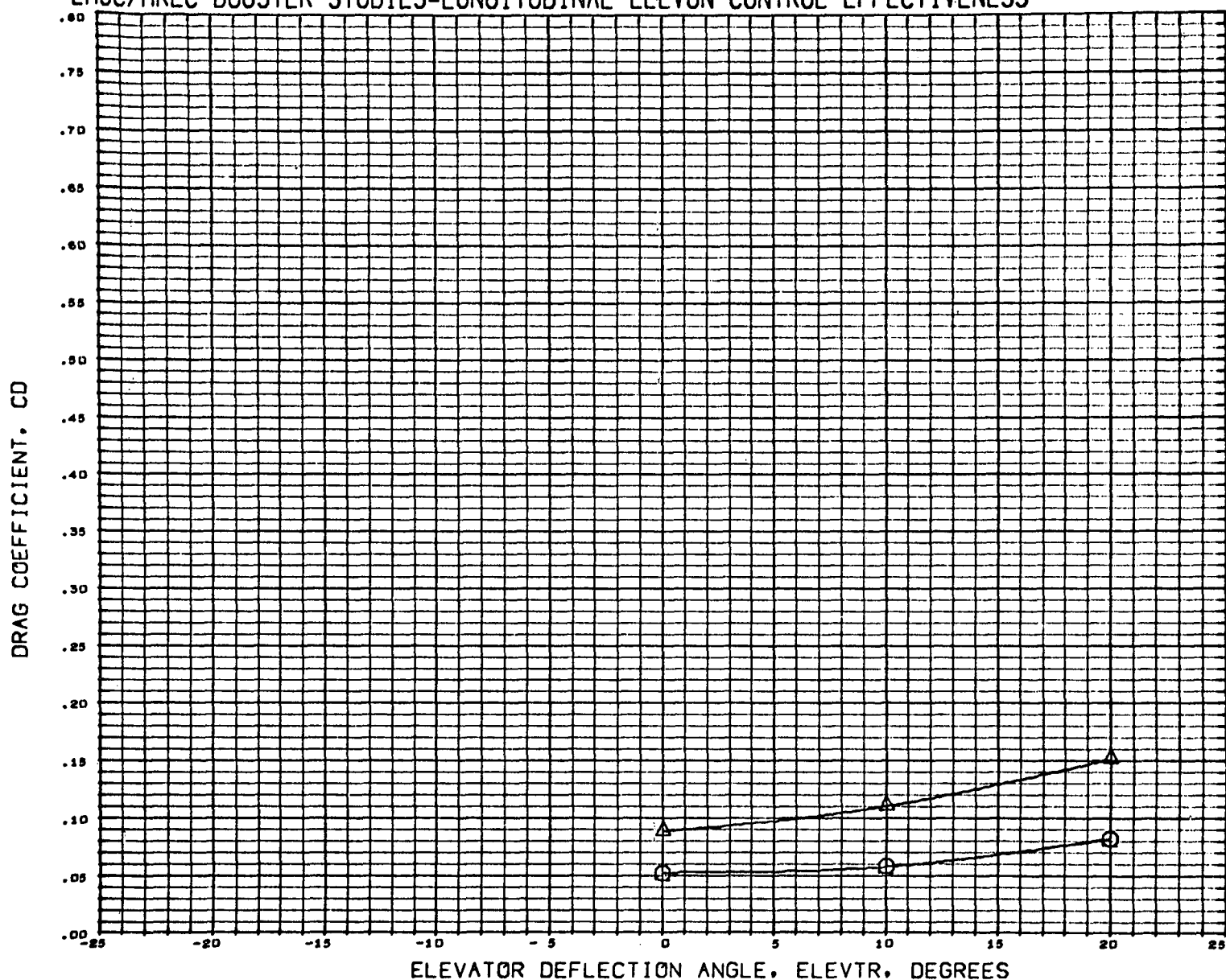
SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE			REFERENCE INFORMATION		
Δ	0.000	MACH	1.125	BETA	- 0.032	DATASET	ELEVTR		SREF	1.3550	50.FT.
	6.000	INCIDC	3.000	INCIDW	0.000	NN3021	0.000	NN3025	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3029	20.000		BREF	3.4530	FEET
		CANARD	10.000	RUDDER	0.000				XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000				YMRP	0.0000	FEET
									ZMRP	0.0187	FEET
									SCALE	0.0150	SCALE
		DATA HIST. CODE I									

NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1

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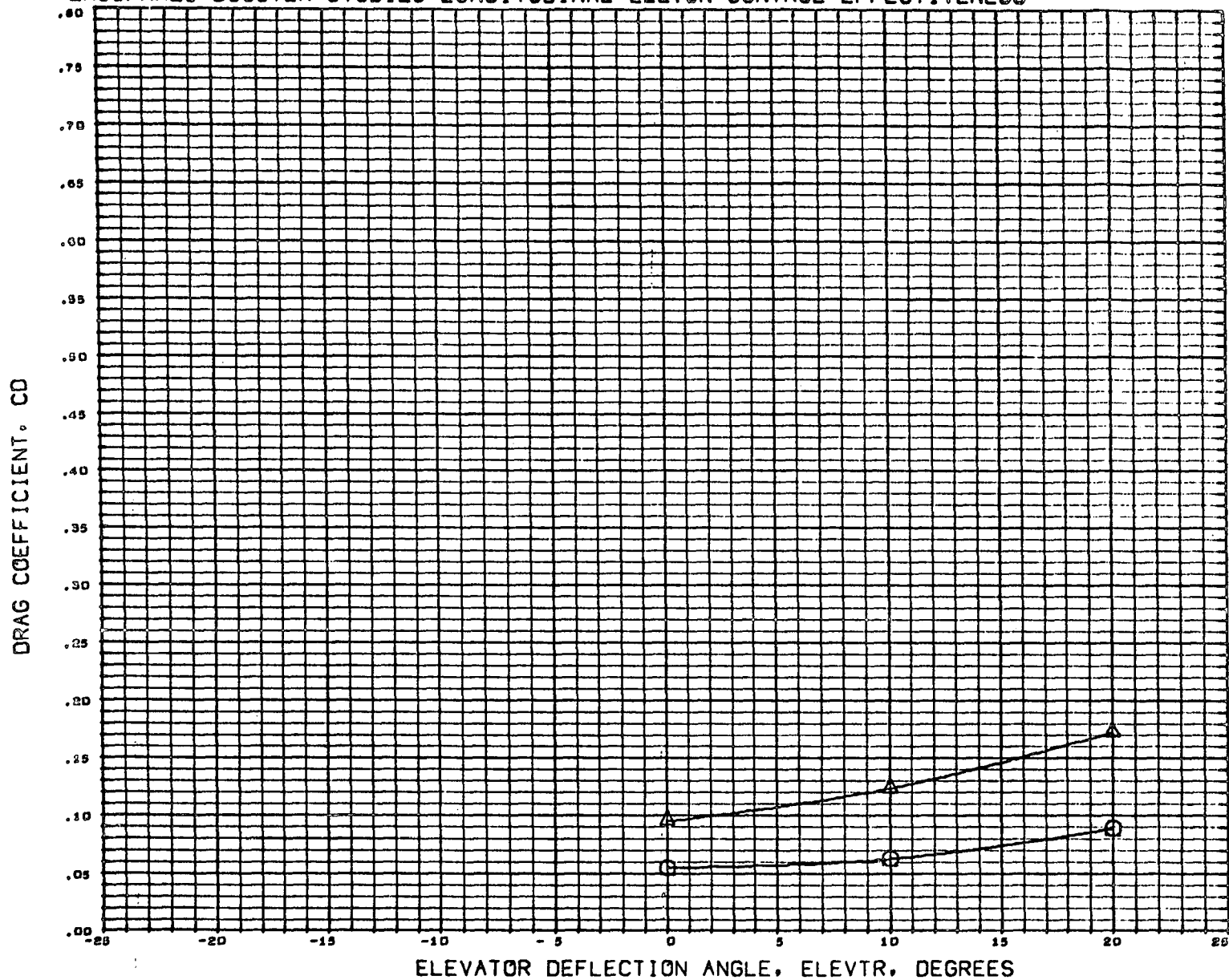
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LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE			REFERENCE INFORMATION		
O	0.000	MACH	0.700	BETA	- 0.032	DATASET	ELEVTR		SREF	1.3550	SQ.FT.
	6.000	INCIDC	3.000	INCIDW	0.000	NN3021	0.000	NN3025	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3029	20.000		BREF	3.4530	FEET
		CANARD	10.000	RUDDER	0.000				XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000				YMRP	0.0000	FEET
									ZMRP	0.0167	FEET
									SCALE	0.0150	SCALE
		DATA HIST. CODE I									

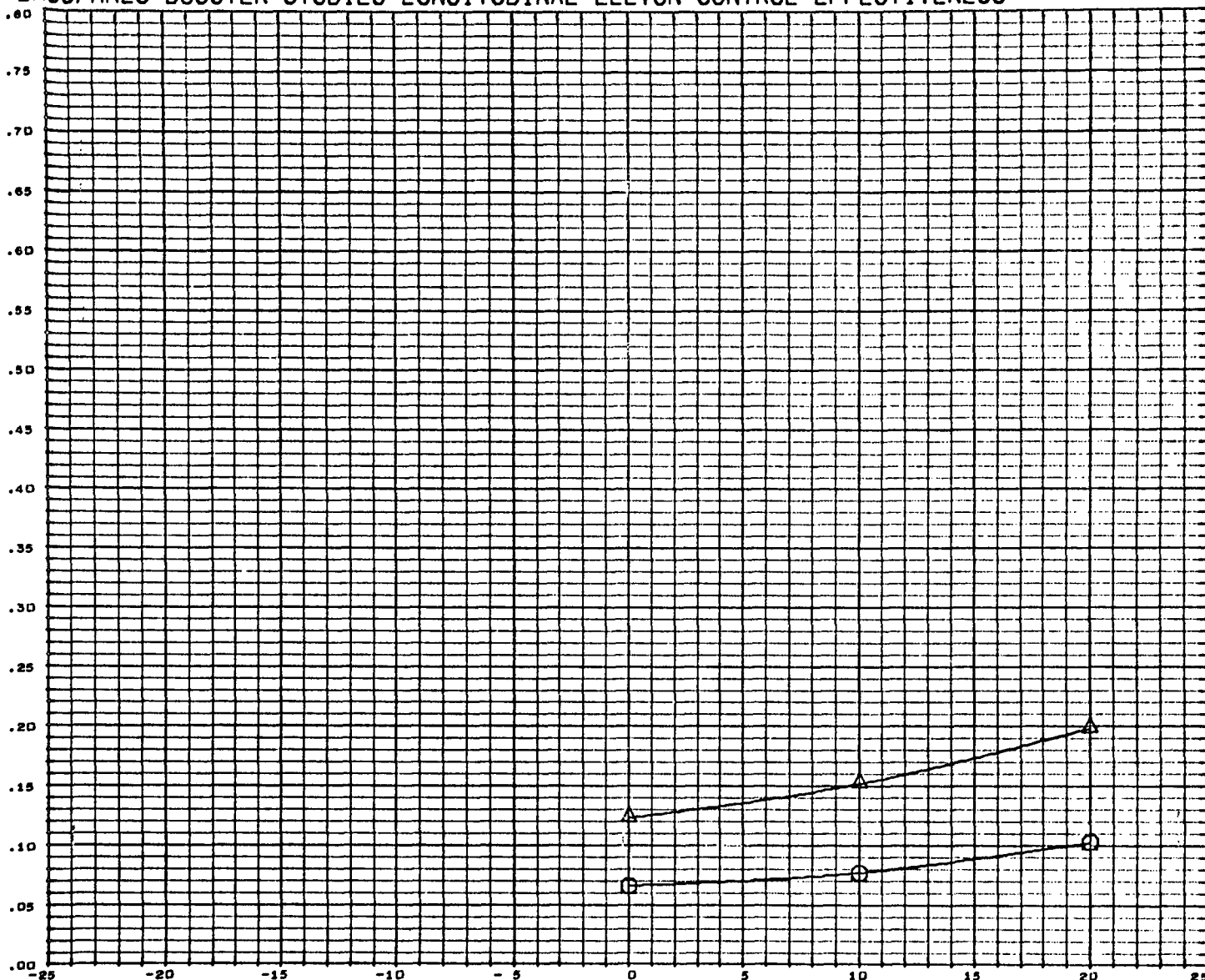
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE				REFERENCE INFORMATION		
O	0.000	MACH	0.800	BETA	- 0.032	DATASET	ELEVTR	DATASET	ELEVTR	SREF	1.3550	80.FT.
Δ	6.000	INCIDC	3.000	INCIDW	0.000	NN3021	0.000	NN3025	10.000	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3029	20.000			BREF	3.4530	FEET
		CANARD	10.000	RUDDER	0.000					YMRP	2.9950	FEET
		WINGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
										ZMRP	0.0107	FEET
										SCALE	0.0150	SCALE
		DATA HIST. CODE I										

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS

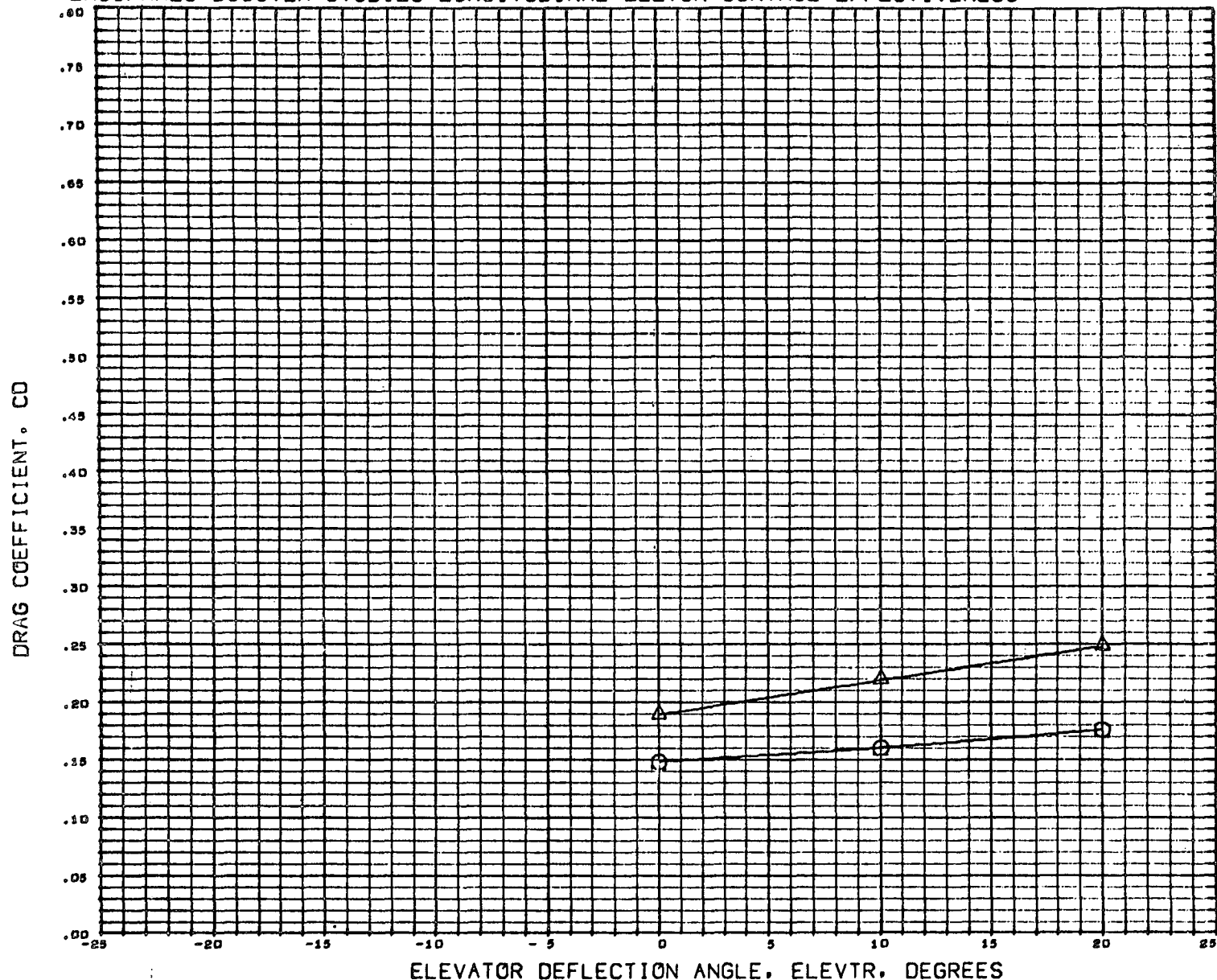
DRAG COEFFICIENT, CD



ELEVATOR DEFLECTION ANGLE, ELEVTR, DEGREES

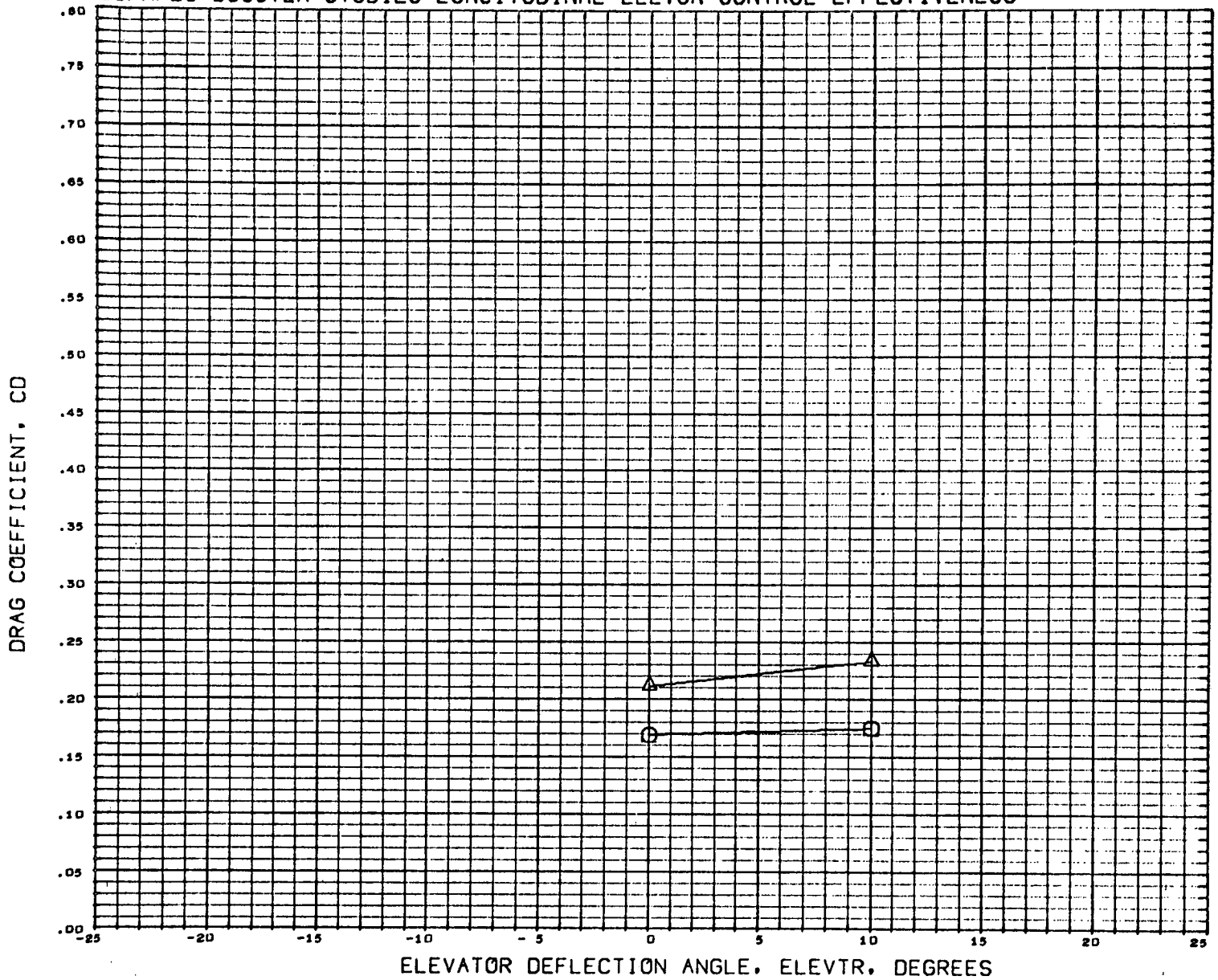
SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE				REFERENCE INFORMATION		
O	0.000	MACH	0.900	BETA	0.032	DATASET	ELEVTR	DATASET	ELEVTR	SREF	1.3550	SQ.FT.
	6.000	INCIDC	3.000	INCIDW	0.000	NN3021	0.000	NN3025	10.000	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3029	20.000			BREF	3.4530	FEET
		CANARD	10.000	RUDDER	0.000					XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET
		DATA HIST. CODE	1							ZMRP	0.0187	FEET
										SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



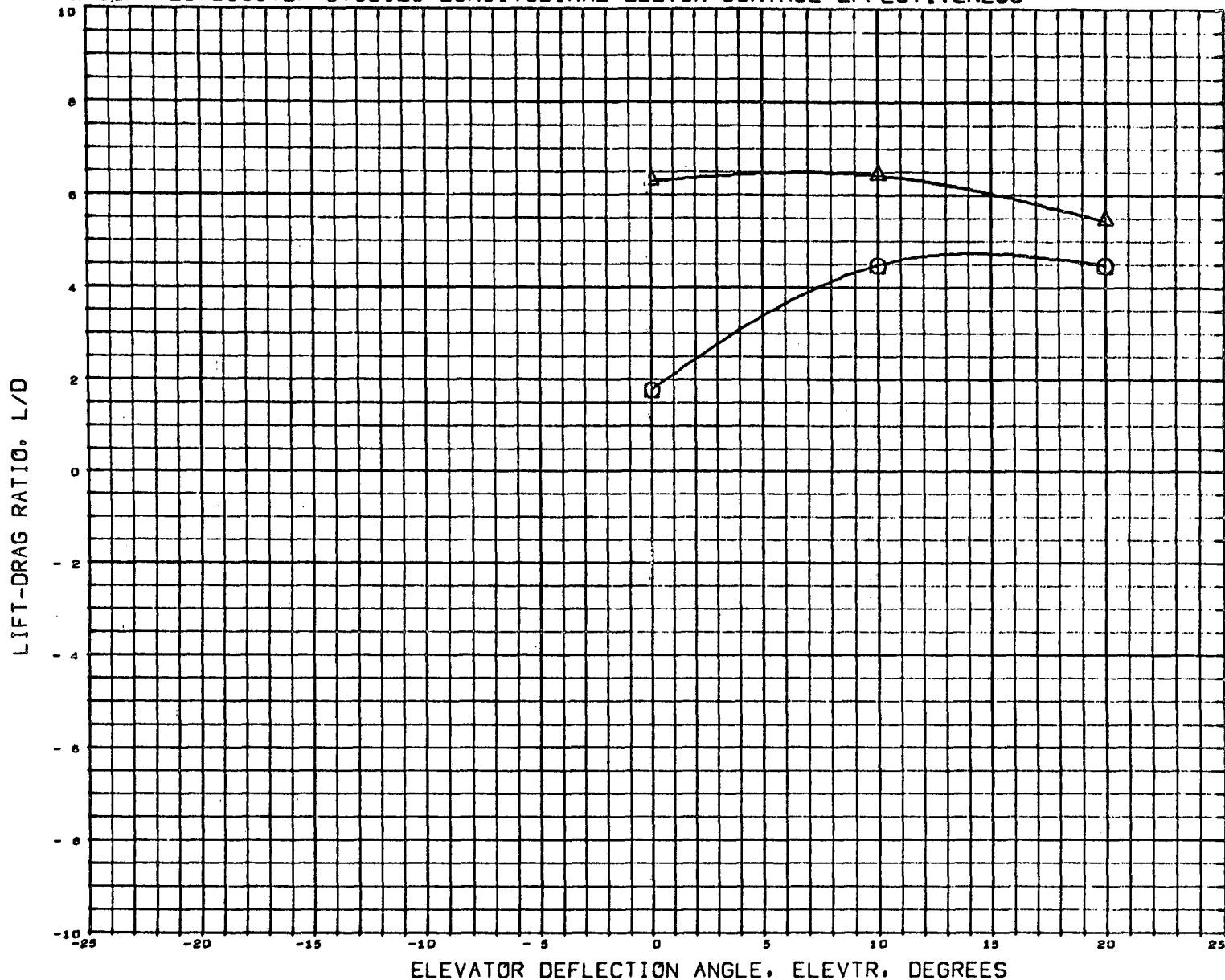
SYMBOL	ALPHA	PARAMETRIC VALUES					DATA SOURCE			REFERENCE INFORMATION		
O △	0.000	MACH	1.000	BETA	- 0.032	DATASET	ELEVTR	DATASET	ELEVTR	SREF	1.3550	SQ.FT.
	6.000	INCIDC	3.000	INCIDW	0.000	NN3021	0.000	NN3025	10.000	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3029	20.000			BREF	3.4530	FEET
		CANARD	10.000	RUDDER	0.000					XMRF	2.5950	FEET
		WINGPOS	1.000	CNDPOS	1.000					YMRF	0.0000	FEET
										ZMRF	0.0167	FEET
										SCALE	0.0150	SCALE
		DATA HIST. CODE 1										


LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



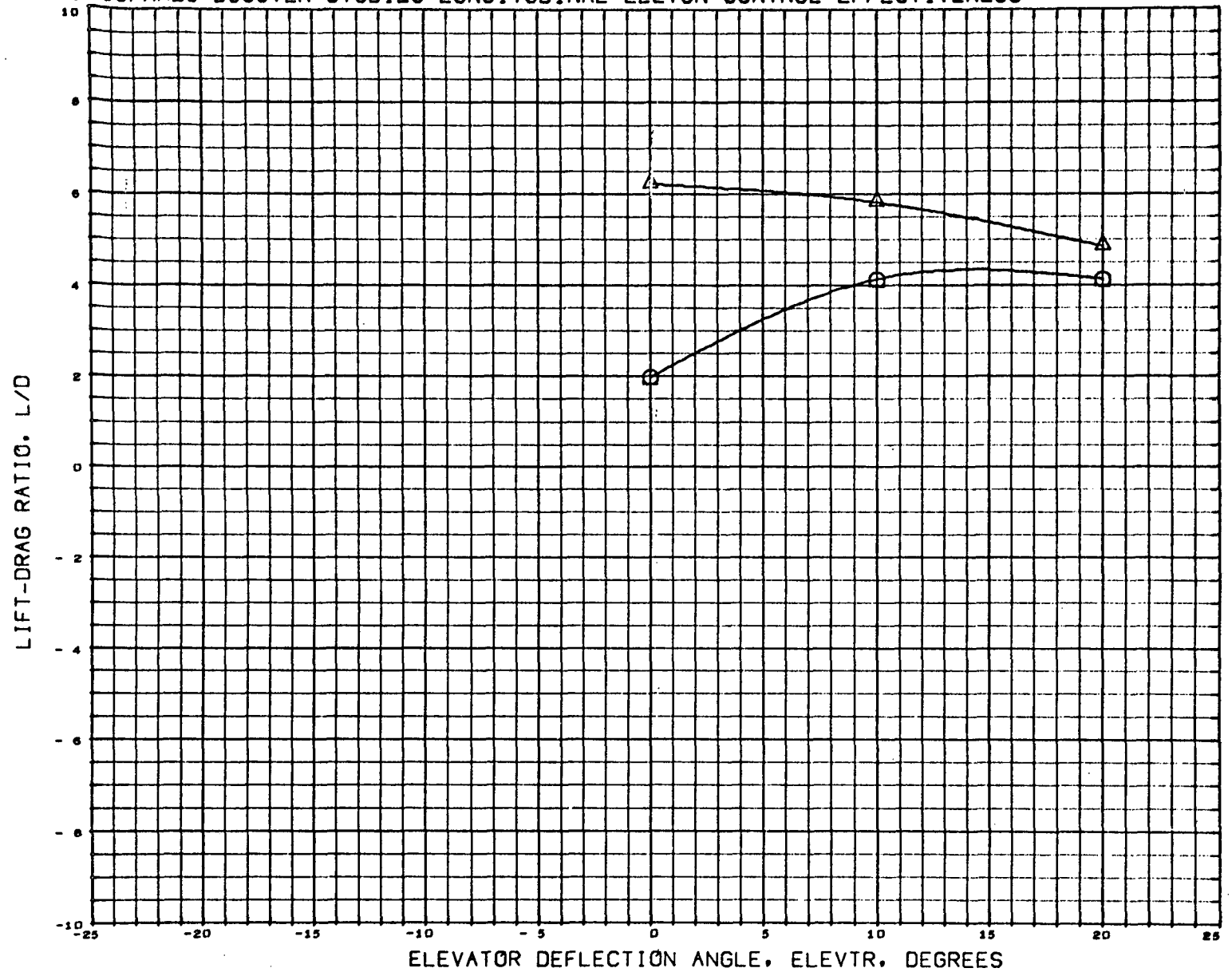
SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE			REFERENCE INFORMATION		
O Δ	0.000	MACH	1.125	BETA	- 0.032	DATASET	ELEVTR	DATASET	ELEVTR	SREF	1.3550 SQ.FT.
	6.000	INCIDC	3.000	INCIDW	0.000	NN3021	0.000	NN3025	10.000	LREF	3.4530 FEET
		MSFLOW	0.000	AILRON	0.000	NN3029	20.000			BREF	3.4530 FEET
		CANARD	10.000	RUDDER	0.000					XMRP	2.5950 FEET
		WINGPOS	1.000	CNDPOS	1.000					YMRP	0.0000 FEET
										ZMRP	0.0187 FEET
										SCALE	0.0150 SCALE
		DATA HIST. CODE I									

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



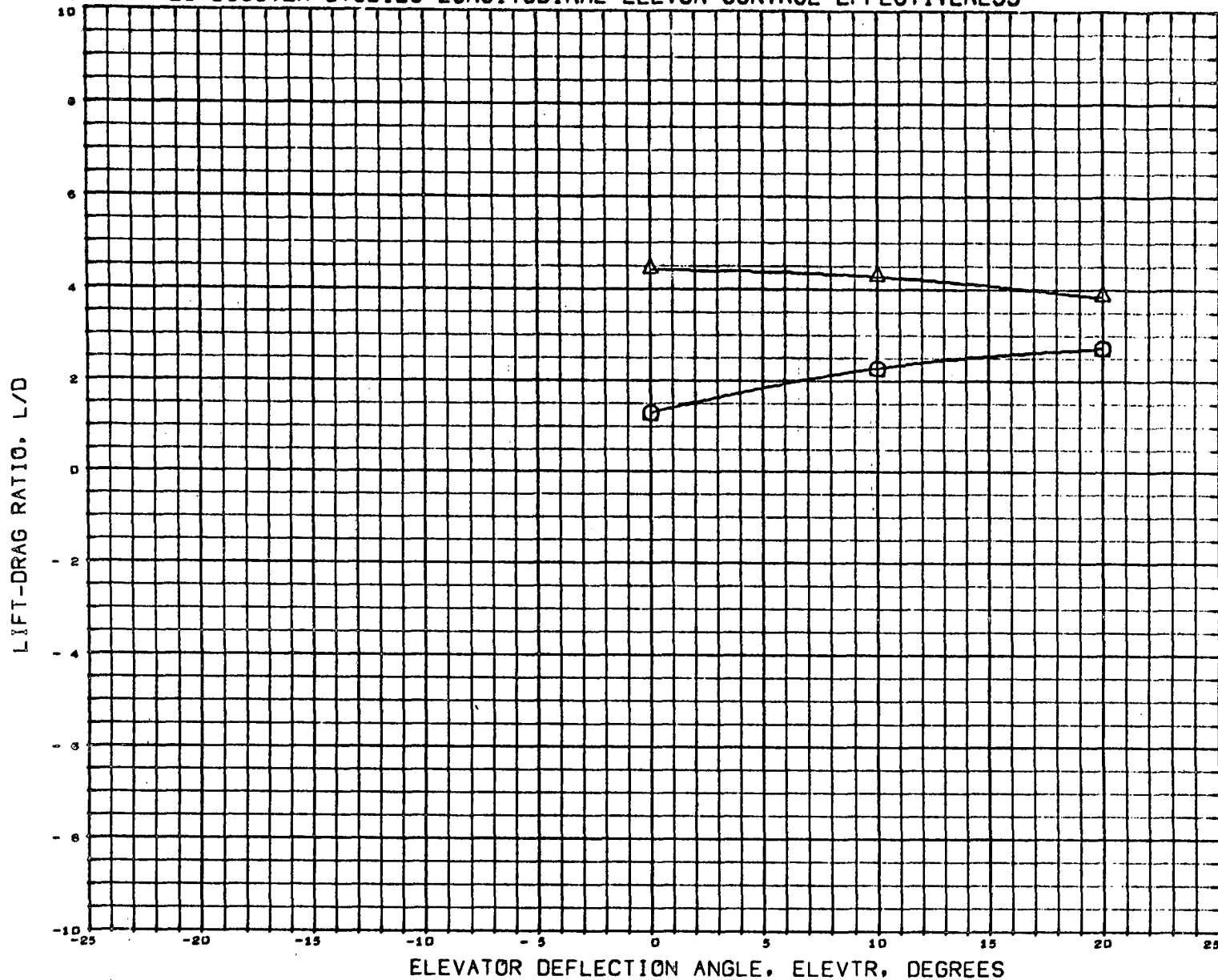
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	0.000	<u>MACH</u>	0.700	BETA	- 0.032	DATASET	ELEVTR	DATASET	ELEVTR	SREF	1.3550	SQ.FT.
	6.000	INCIDC	3.000	INCIDW	0.000	NN3021	0.000	NN3025	10.000	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3029	120.000			BREF	3.4530	FEET
		CANARD	10.000	RUDDER	0.000					XMRP	2.5950	FEET
		CANARD	10.000	RUDDER	0.000					YMRP	0.0000	FEET
		WNGPOS	1.000	CNDPOS	1.000					ZMRP	0.0187	FEET
										SCALE	0.0150	SCALE
	DATA HIST. CODE I											

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE			REFERENCE INFORMATION		
O Δ	0.000	MACH	0.800	BETA	- 0.032	DATASET	ELEVTR		SREF	1.3550	SQ.FT.
	6.000	INCIDC	3.000	INCIDW	0.000	NN3021	0.000	NN3025	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3029	20.000		BREF	3.4530	FEET
		CANARD	10.000	RUDDER	0.000				XMRP	2.5950	FEET
		WINGPOS	1.000	CNDPOS	1.000				YMRP	0.0000	FEET
									ZMRP	0.0187	FEET
									SCALE	0.0150	SCALE
		DATA HIST. CODE 1									

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS

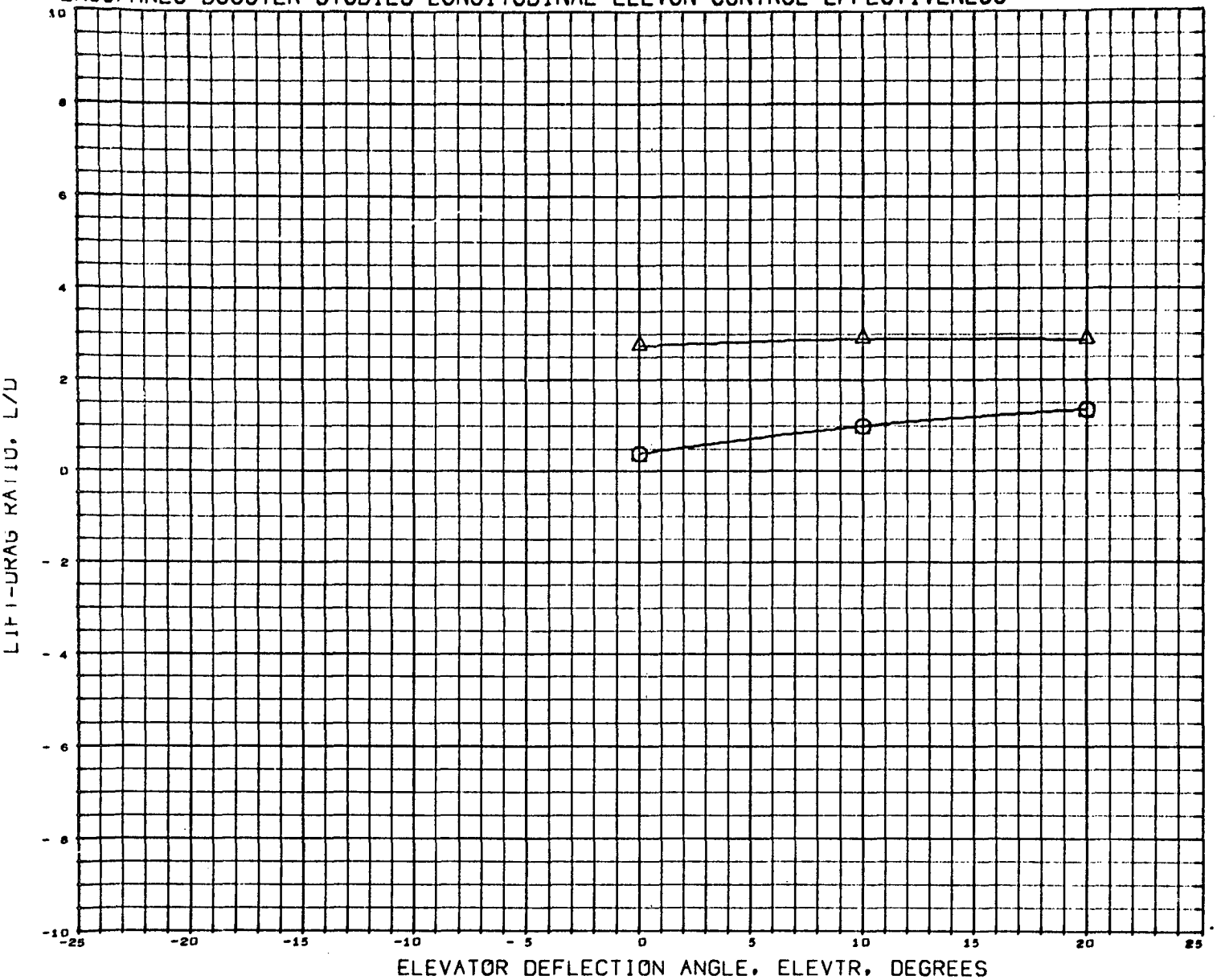


SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE			REFERENCE INFORMATION		
O Δ	0.000	MACH	0.900	BETA	- 0.032	DATASET	ELEVTR		SREF	1.3550	SQ.FT.
	0.000	INCIDC	3.000	INCIDW	0.000	NN3021	0.000	NN3025	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3029	20.000		BREF	3.4530	FEET
		CANARD	10.000	RUDDER	0.000				XMRF	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000				YMRF	0.0000	FEET
		DATA HIST. CODE	I						ZMRF	0.0187	FEET
									SCALE	0.0150	SCALE

NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1

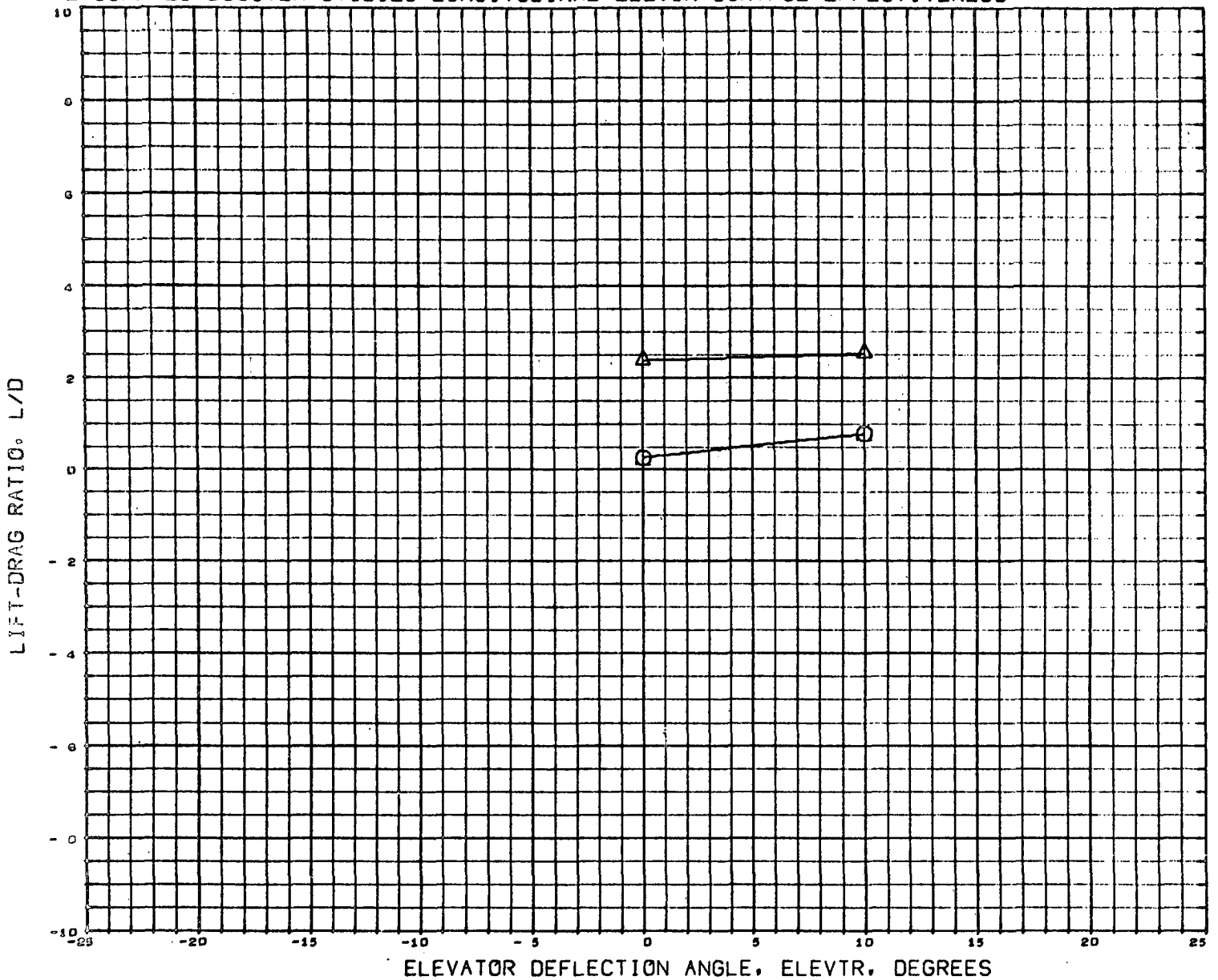
(NN3021) 15 JAN 72 PAGE 192

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



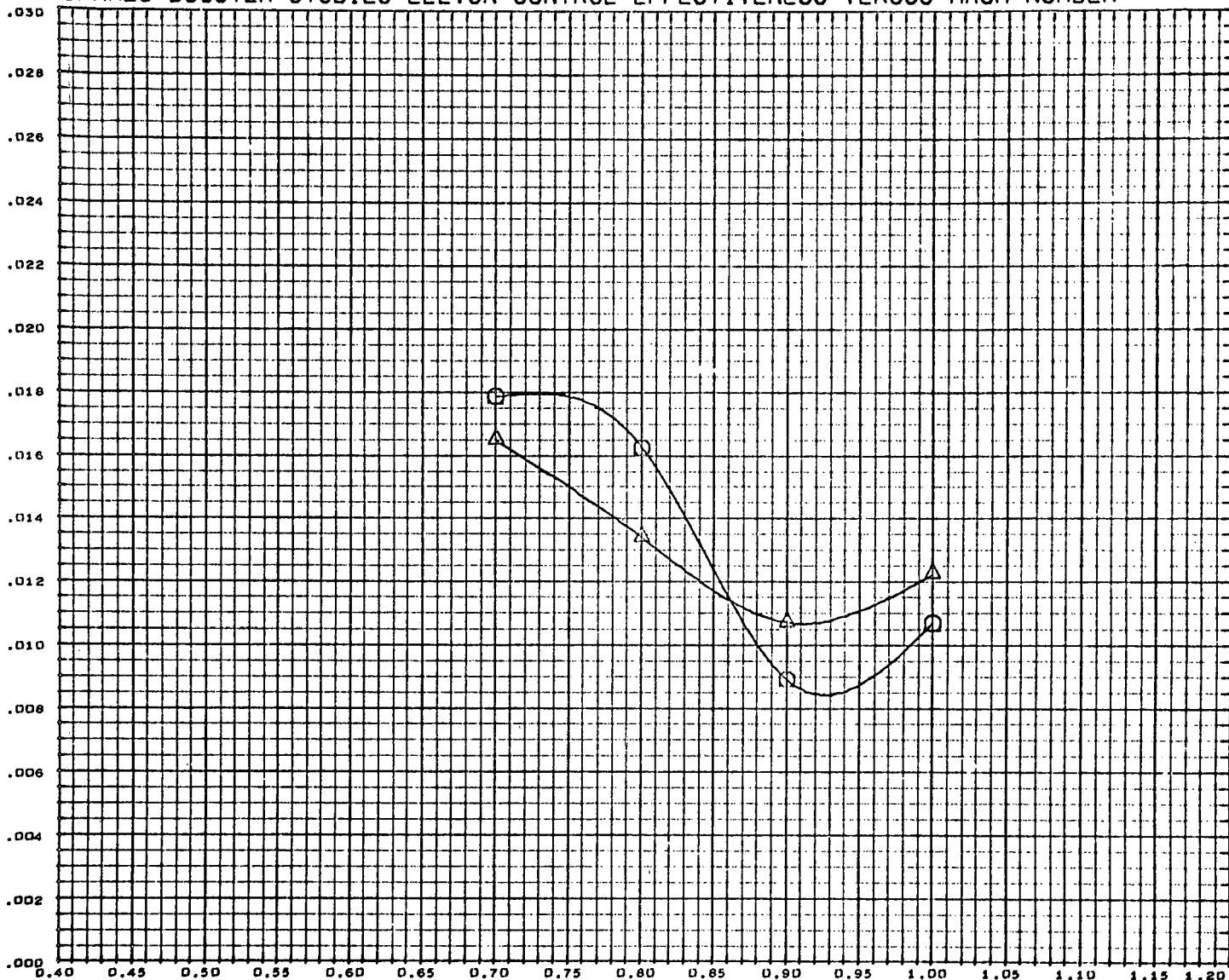
YMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE				REFERENCE INFORMATION			
O	0.000	MACH	1.000	BETA	- 0.032	DATASET	ELEVTR	DATASET	ELEVTR	SREF	1.3550	80.FT.	
Δ	6.000	INCIDC	3.000	INCIDW	0.000	NN3021	0.000	NN3025	10.000	LREF	3.4530	FEET	
		MSFLOW	0.000	AILRON	0.000	NN3029	20.000			BREF	3.4530	FEET	
		CANARD	10.000	RUDDER	0.000					XMRP	2.5950	FEET	
		WINGPOS	1.000	CNDPOS	1.000					YMRP	0.0000	FEET	
		DATA HIST. CODE	I							ZMRP	0.0187	FEET	
										SCALE	0.0150	SCALE	

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL ELEVON CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES				DATA SOURCE			REFERENCE INFORMATION		
○	0.000	<u>MACH</u>	1.125	BETA	- 0.032	DATASET	ELEVTR		SREF	1.3550	SQ.FT.
△	6.000	INCIDC	3.000	INCIDW	0.000	NN3021	0.000	NN3025	LREF	3.4530	FEET
		MSFLOW	0.000	AILRON	0.000	NN3029	20.000		BREF	3.4530	FEET
		CANARD	10.000	RUDDER	0.000				XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000				YMRP	0.0000	FEET
									ZMRP	0.0167	FEET
									SCALE	0.0150	SCALE
		DATA HIST. CODE	I								

LMSC/HREC BOOSTER STUDIES-ELEVON CONTROL EFFECTIVENESS VERSUS MACH NUMBER



MACH NUMBER

SYMBOL

○
△

ALPHA

0.000
6.000

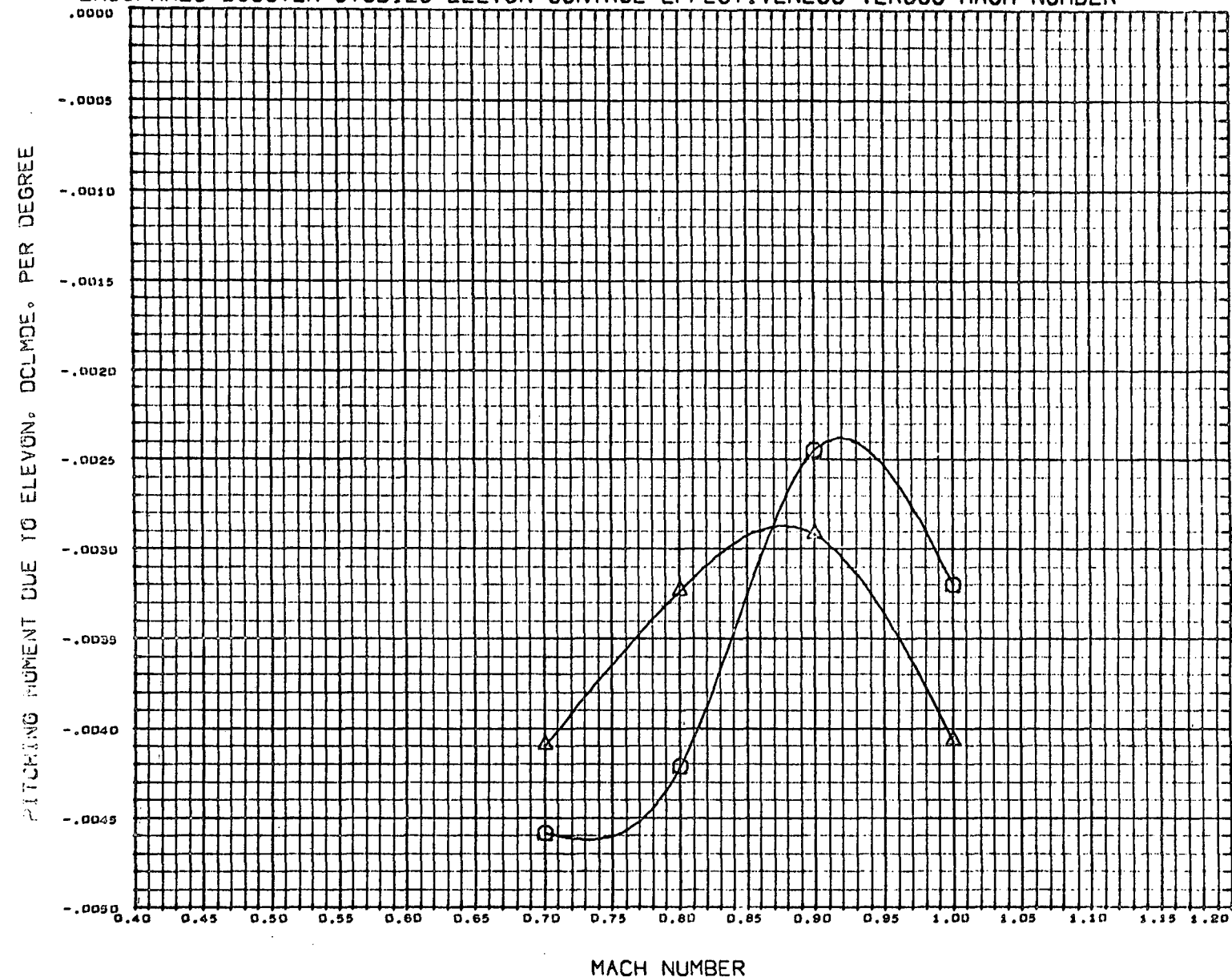
PARAMETRIC VALUES

INCIDC	3.000	INCIDW	0.000
MSFLOW	0.000	AILRON	0.000
CANARD	10.000	ELEVTR	0.000
RUDDER	0.000	WNGPOS	1.000
CNDPOS	1.000		
DATA MIST. CODE	I#P		

REFERENCE INFORMATION

SREF	1.3550	50.FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0187	FEET
SCALE	0.0150	SCALE

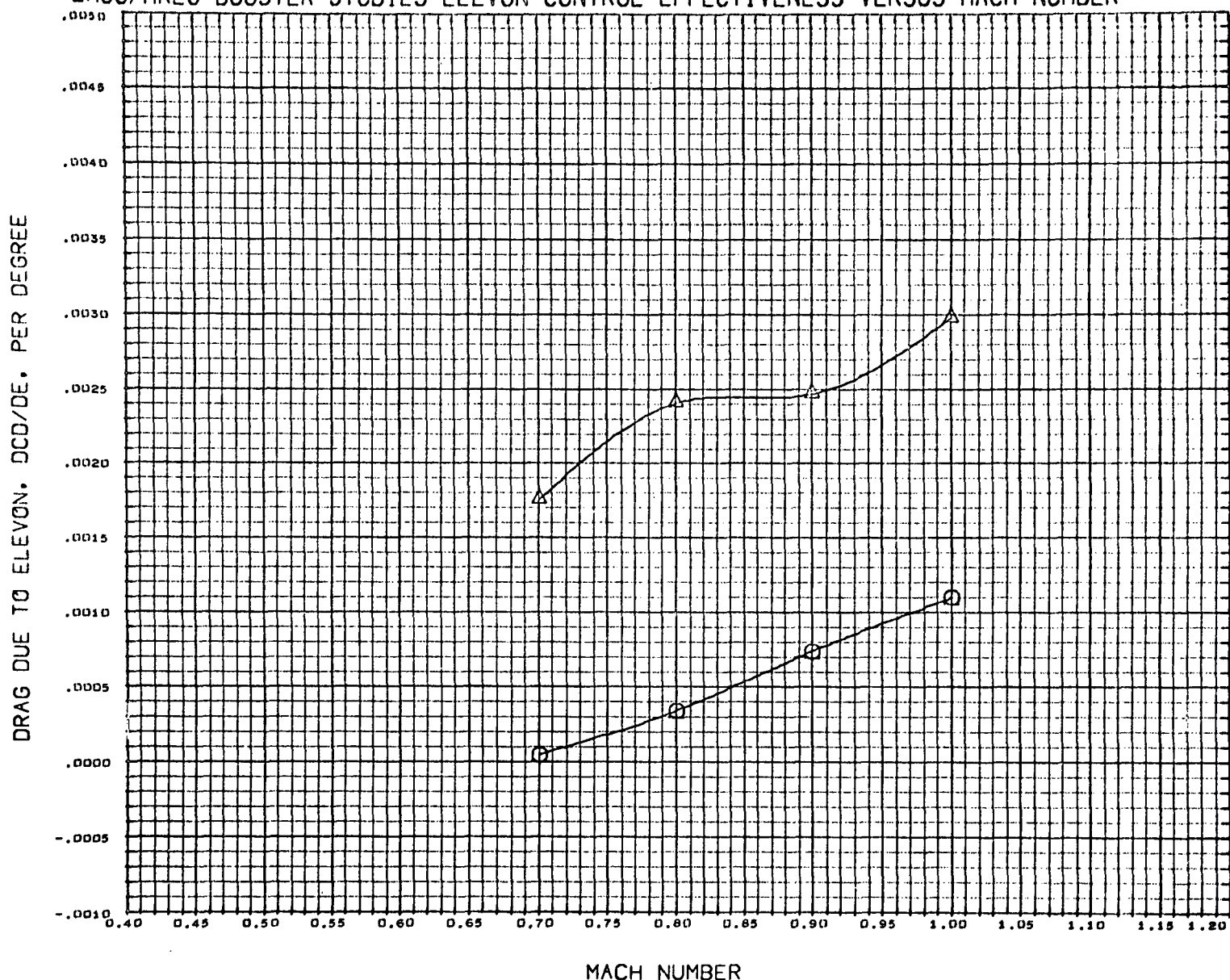
LMSC/HREC BOOSTER STUDIES-ELEVON CONTROL EFFECTIVENESS VERSUS MACH NUMBER



SYMBOL	ALPHA	PARAMETRIC VALUES			
○	0.000	INCIDC	3.000	INCIDW	0.000
△	6.000	MSFLOW	0.000	AILRON	0.000
		CANARD	10.000	ELEVTR	0.000
		RUDDER	0.000	WNGPOS	1.000
		CNDPOS	1.000		
		DATA HIST. CODE IAP			

REFERENCE INFORMATION		
SREF	1.3550	50. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.5950	FELT
YMRP	0.0000	FELT
ZMRP	0.0187	FELT
SCALE	0.0150	SCALE

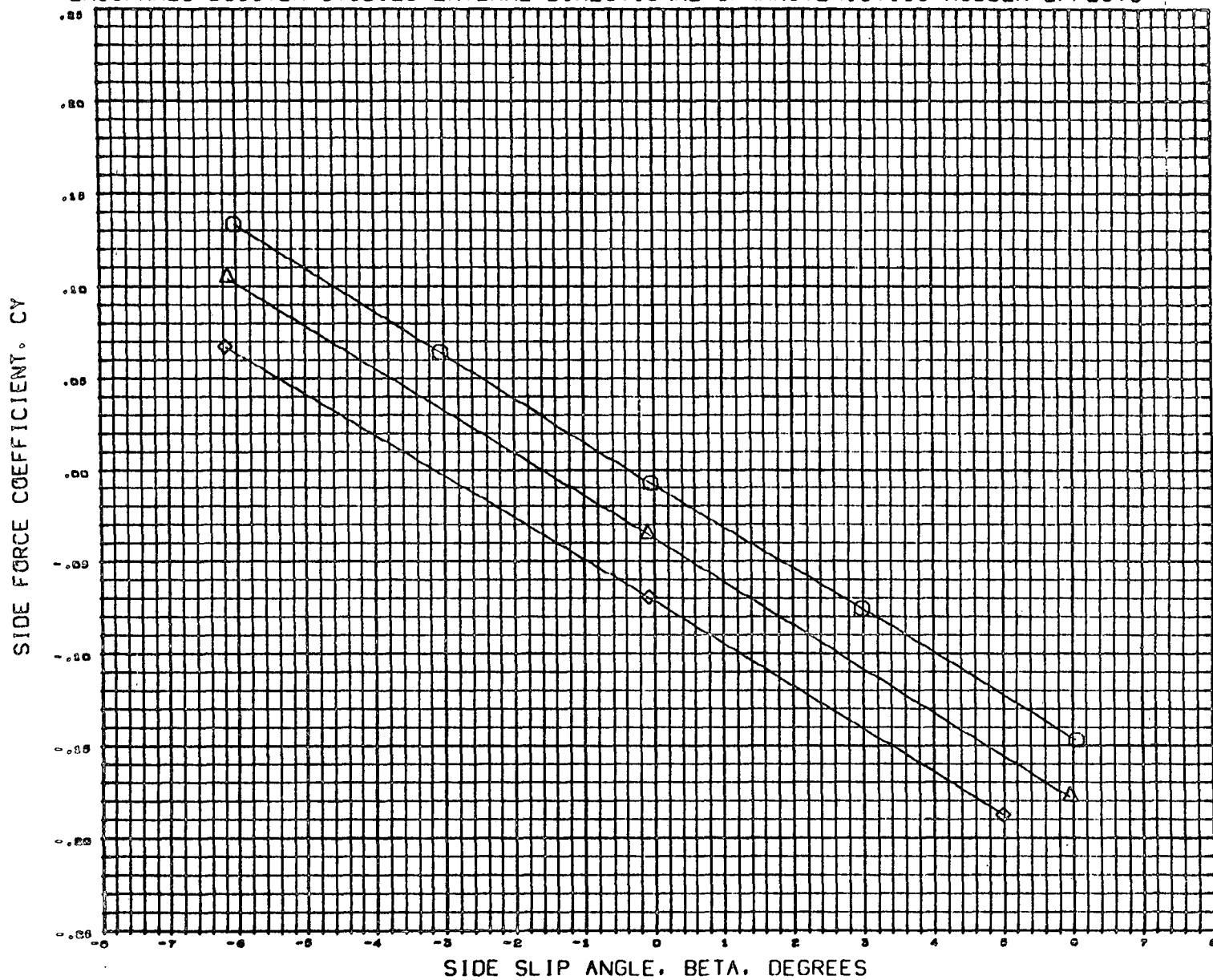
LMSC/HREC BOOSTER STUDIES-ELEVON CONTROL EFFECTIVENESS VERSUS MACH NUMBER



SYMBOL Δ ALPHA 6.000
 INCIDC 3.000 INCIDW 0.000
 MSFLOW 0.000 AILRON 0.000
 CANARD 10.000 ELEVTR 0.000
 RUDDER 0.000 WNGFOS 1.000
 CNDFOS 1.000
 DATA HIST. CODE 10F

REFERENCE INFORMATION
 SREF 1.3550 SQ. FT.
 LREF 3.4530 FEET
 BREF 3.4530 FEET
 XMRF 2.5950 FEET
 YMRF 0.0000 FEET
 ZMRF 0.0187 FEET
 SCALE 0.0150 SCALE

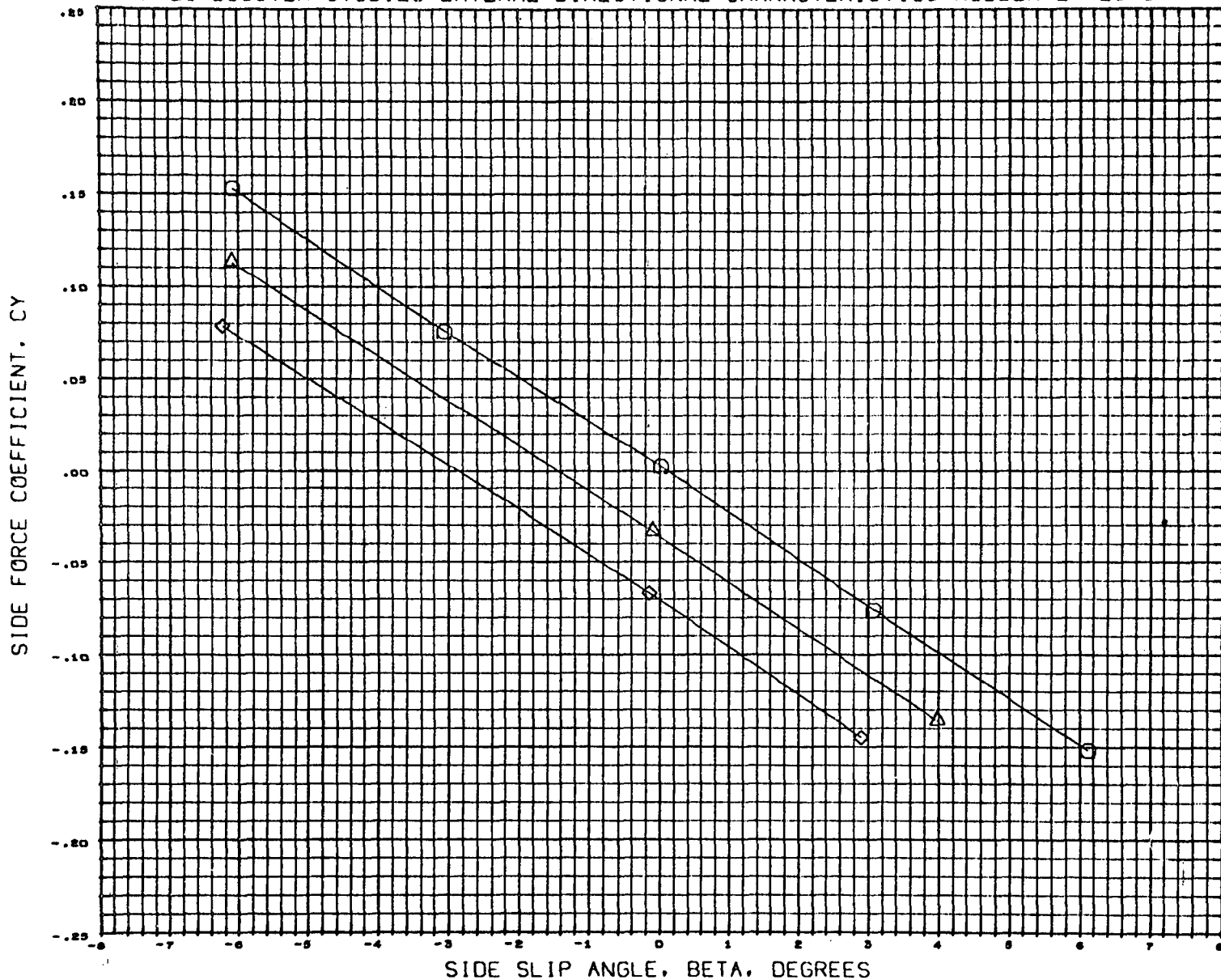
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
QR0002	○	N8RDC-3210, HSPC/LMSC BOOSTER B1C2F2W1V1	0.017	0.000	0.000	0.000	SREF	1.3590 SQ.FT.
QR0004	△	N8RDC-3210, HSPC/LMSC BOOSTER B1C2F2W1V1	0.008	-5.000	0.000	0.000	LREF	3.4530 FEET
QR0006	◇	N8RDC-3210, HSPC/LMSC BOOSTER B1C2F2W1V1	0.023	-10.000	0.000	0.000	BREF	3.4530 FEET
							XMRP	2.9990 FEET
							YMRP	0.0000 FEET
							ZMRP	0.0167 FEET
							SCALE	0.0190 SCALE

MACH 0.099

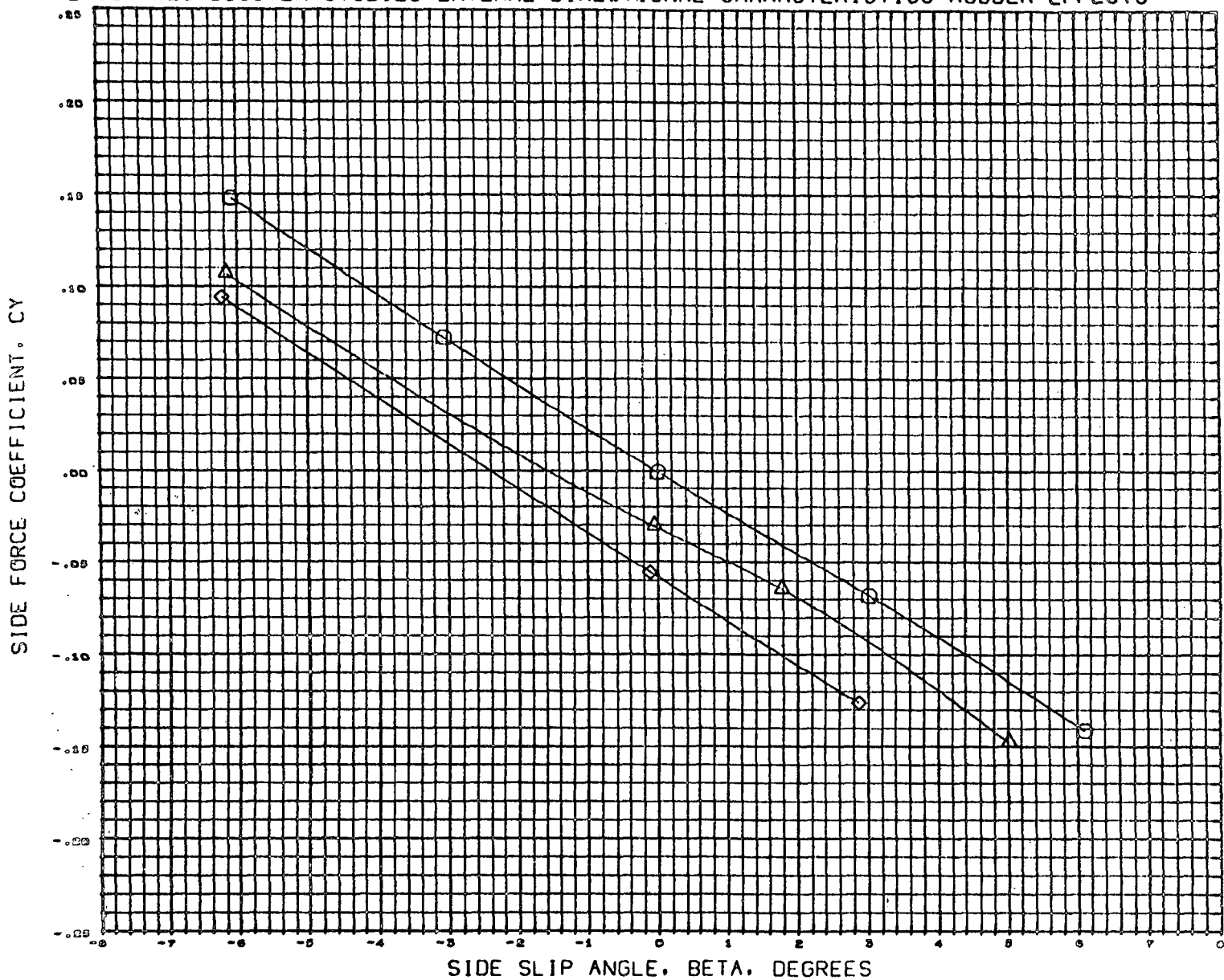
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(RN3002)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.017	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3046)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.008	-5.000	0.000	0.000	LREF	3.4330 FEET
(RN3050)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.023	-10.000	0.000	0.000	BREF	3.4330 FEET
						XMRF	2.9950 FEET
						YMRF	0.0000 FEET
						ZMRF	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.600

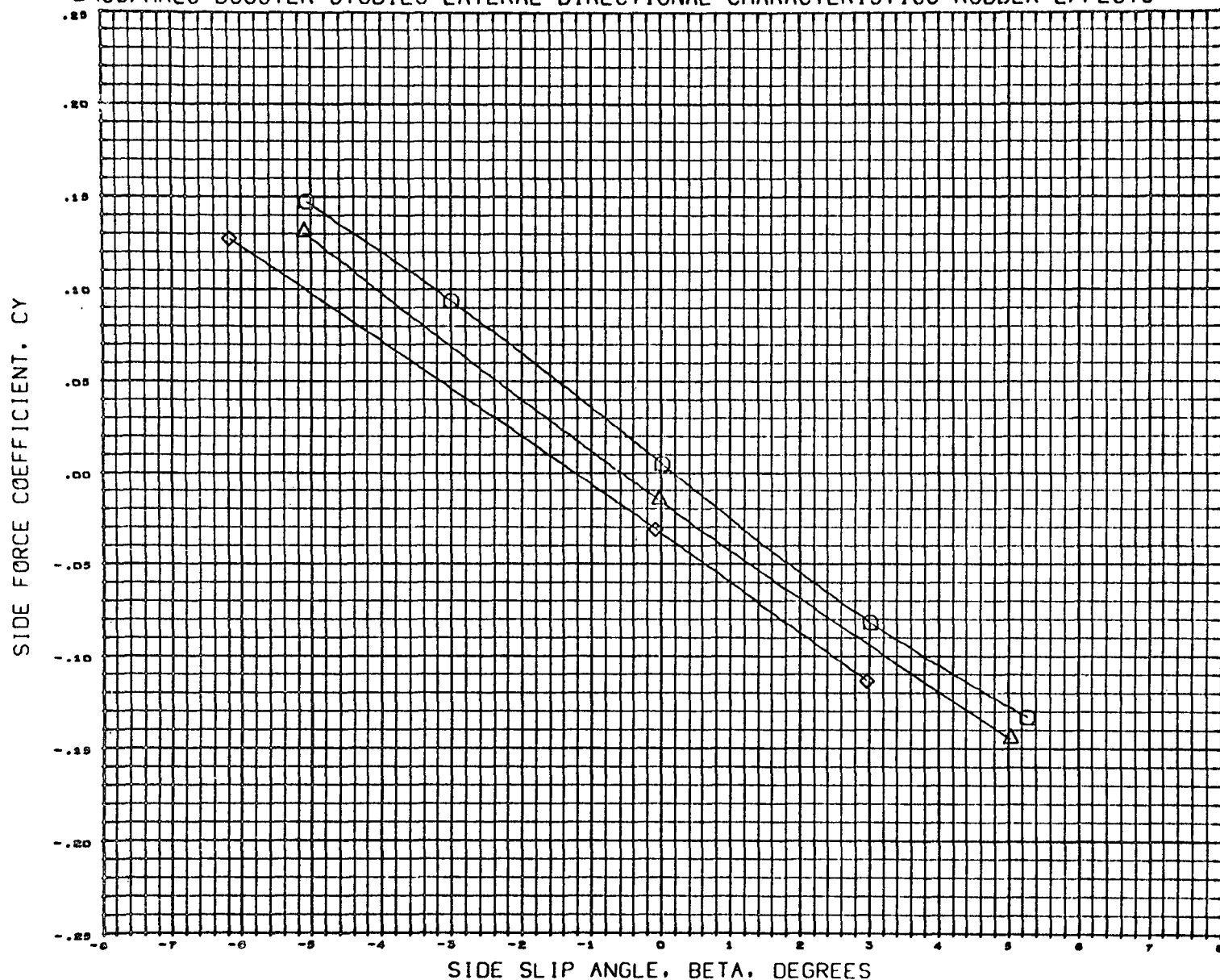
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(R03002)	NBRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.017	0.000	0.000	0.000	SREF	1.3950 DD.FT.
(R03040)	NBRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.008	-5.000	0.000	0.000	LREF	3.4530 FEET
(R03050)	NBRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.023	-10.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.900

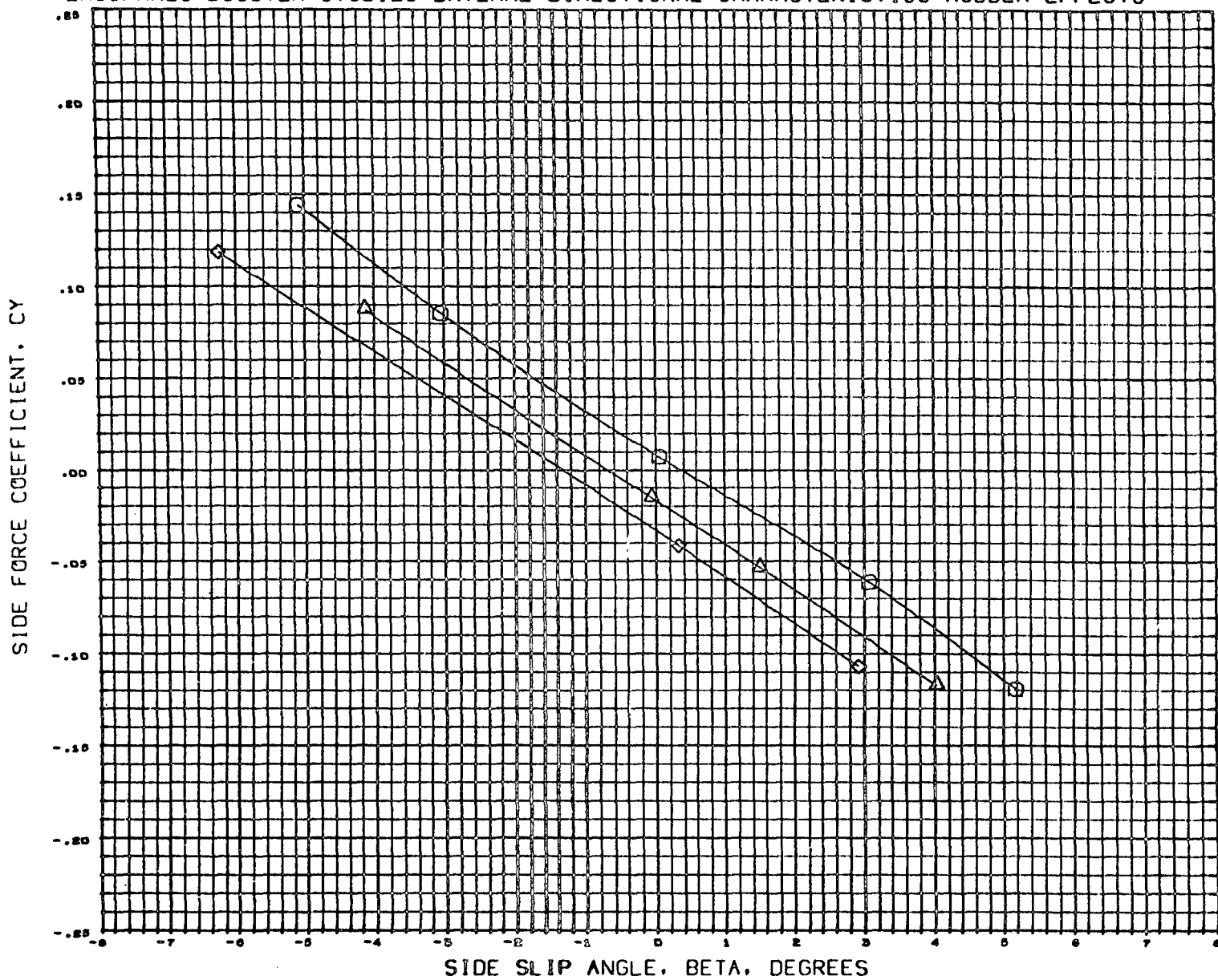
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(RN3002)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.017	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3046)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.008	-5.000	0.000	0.000	LREF	3.4530 FEET
(RN3050)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.023	-10.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 1.001

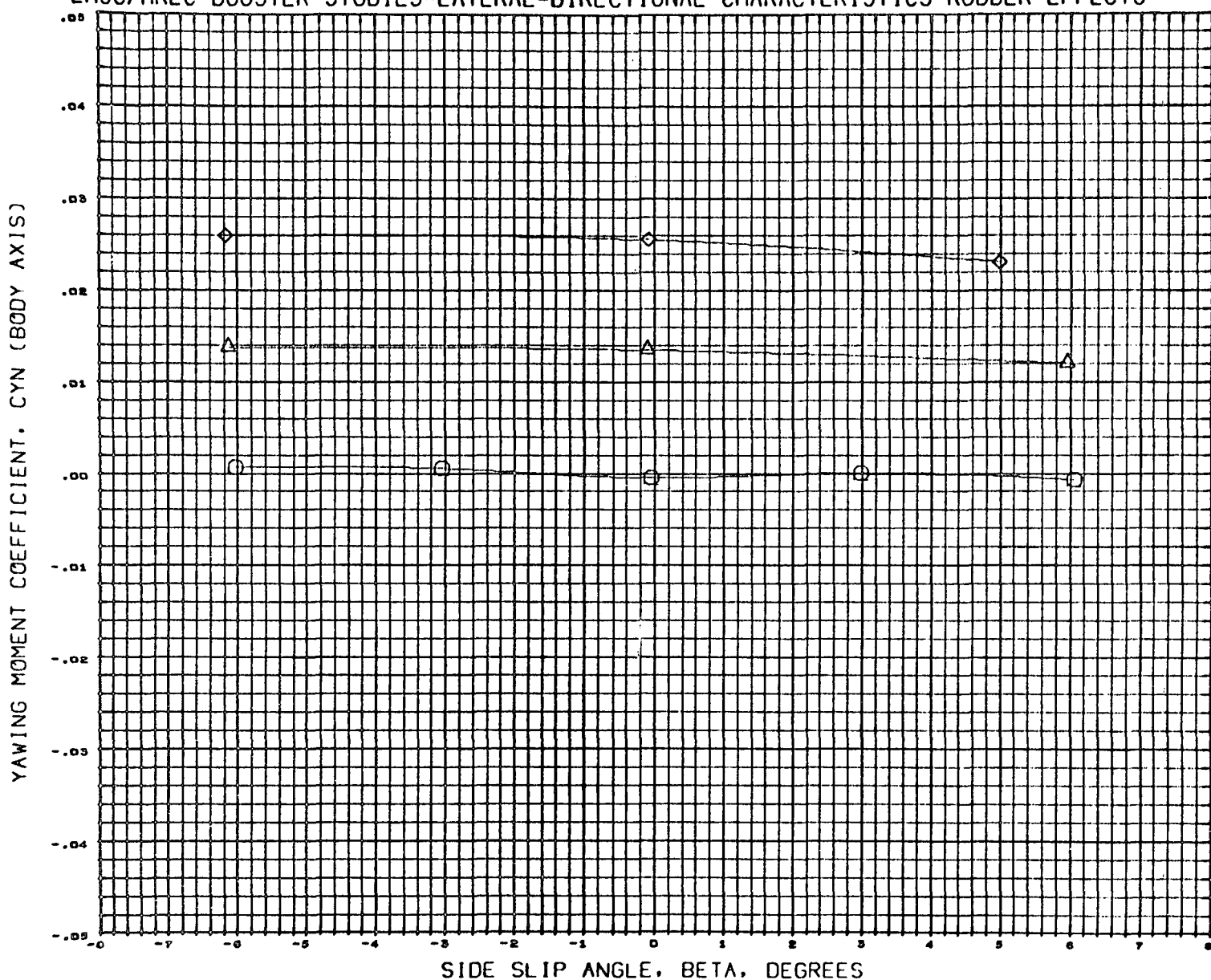
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(RNS002)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V3	0.017	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RNS046)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V3	0.008	-5.000	0.000	0.000	LREF	3.4530 FEET
(RNS050)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V3	0.023	-10.000	0.000	0.000	SREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 1.122

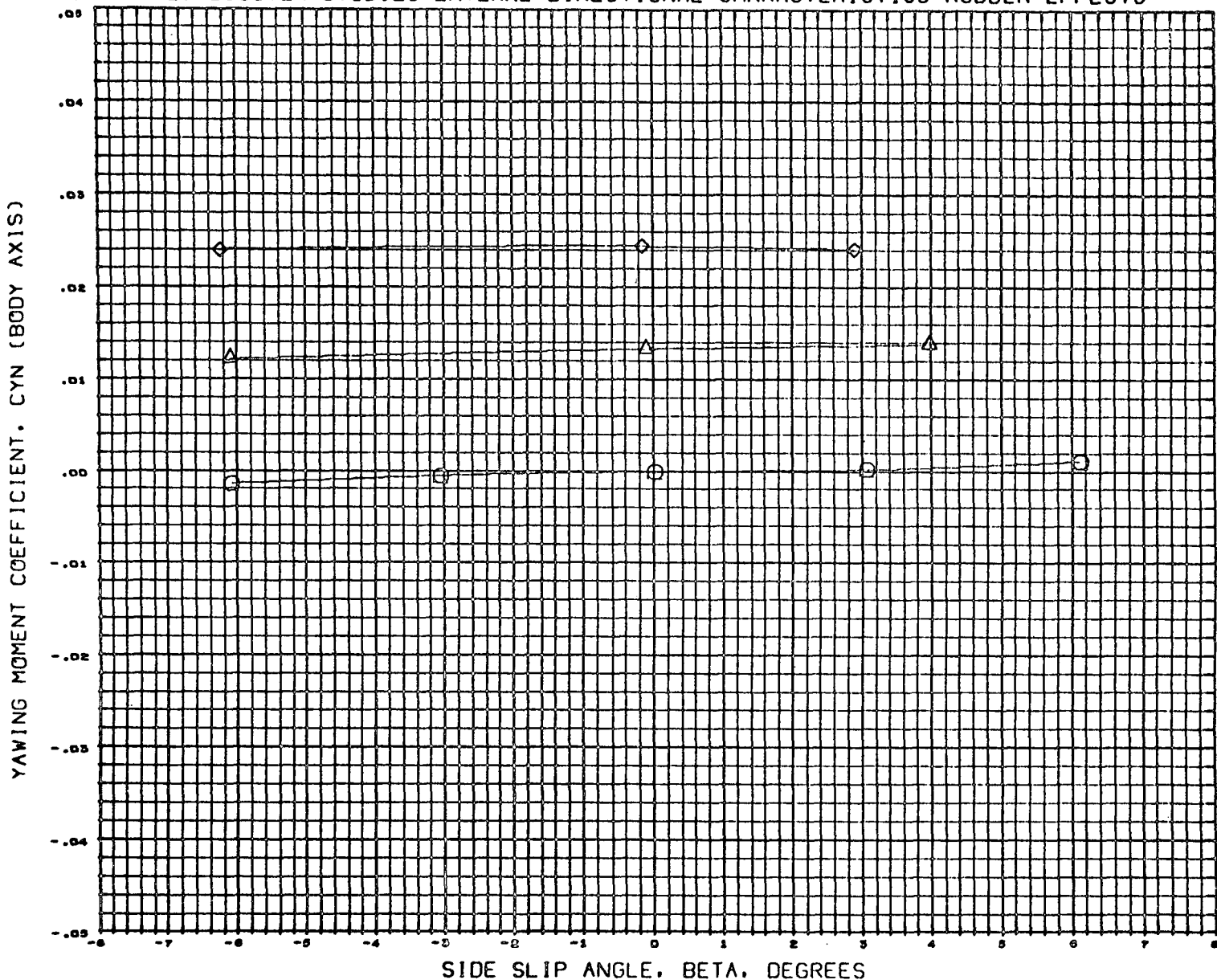
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(RN3002)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.017	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(RN3040)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.008	-5.000	0.000	0.000	LREF	3.4530 FEET
(RN3090)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.023	-10.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.699

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS

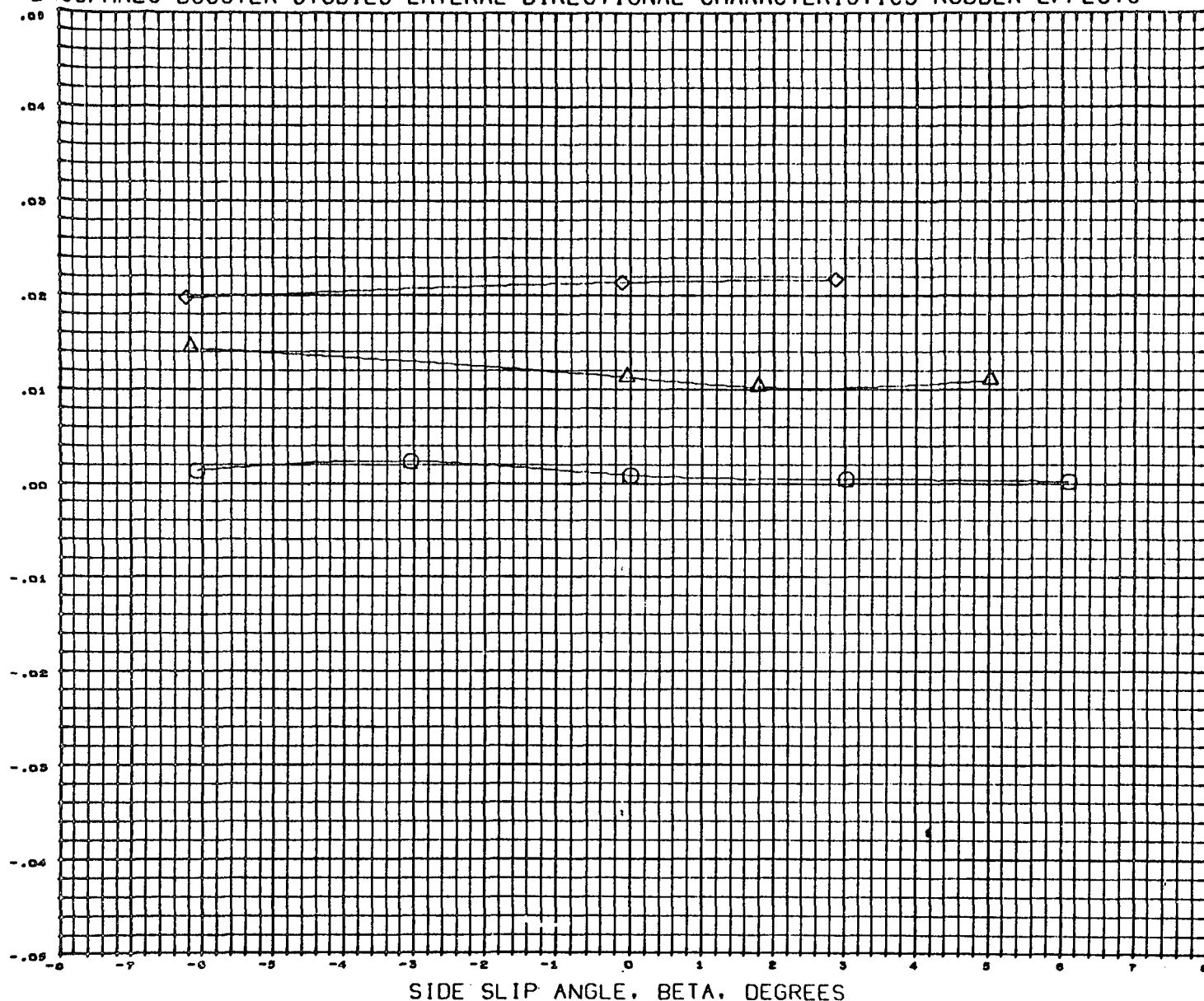


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(RM3002)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.017	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RM3040)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.006	-5.000	0.000	0.000	LREF	3.4530 FEET
(RM3050)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.023	-10.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.800

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS

YAWING MOMENT COEFFICIENT, CYN (BODY AXIS)

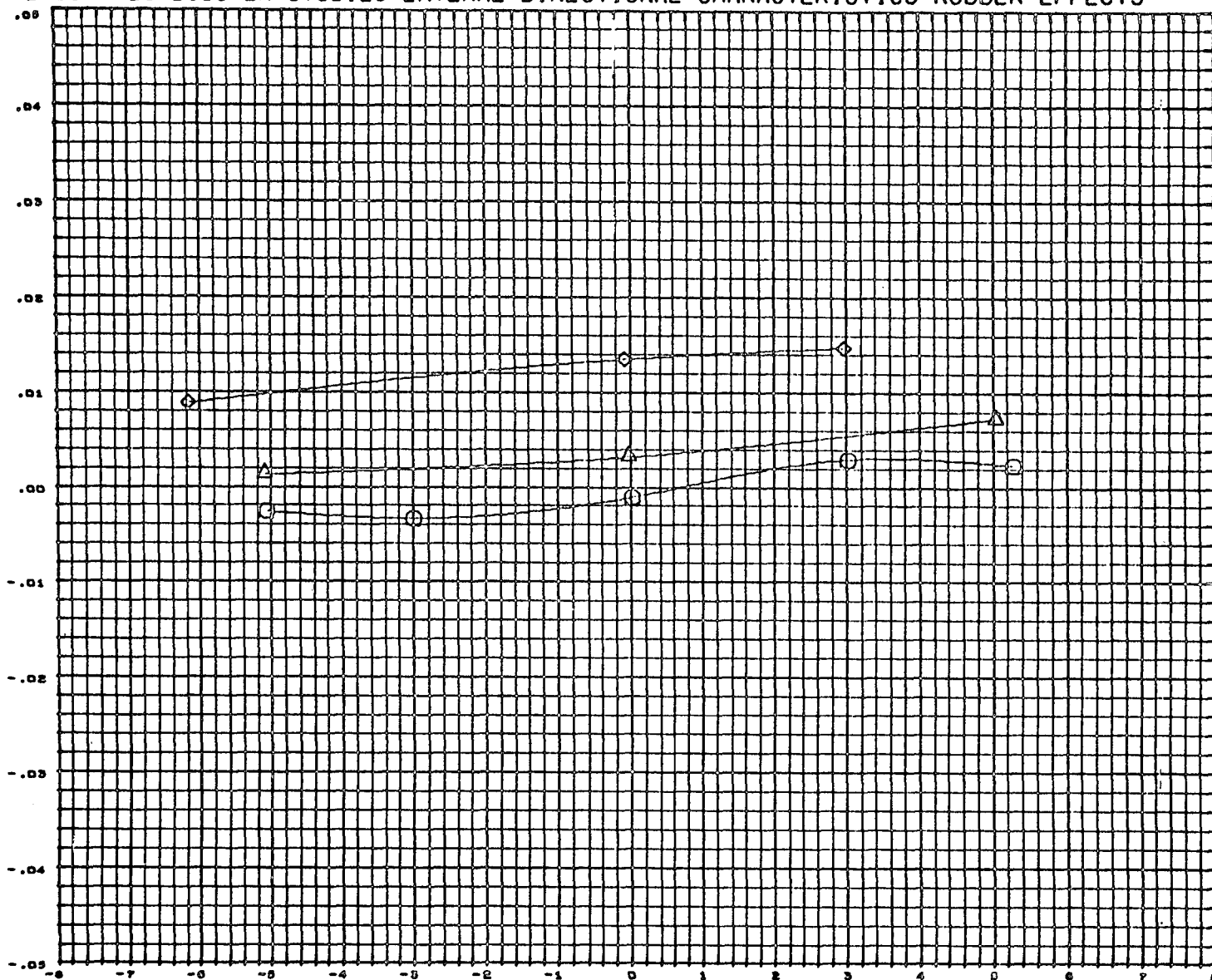


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(RN3002)	○	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.017	0.000	0.000	0.000	SREF	1.3550 SQ./FT.
(RN3046)	△	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.008	-5.000	0.000	0.000	LREF	3.4530 FEET
(RN3050)	◇	NSRDC-3210, MBFC/LMSC BOOSTER B1C2F2W1V1	0.023	-10.000	0.000	0.000	BREF	3.4530 FEET
							XMRP	2.5950 FEET
							YMRP	0.0000 FEET
							ZMRP	0.0187 FEET
							SCALE	0.0190 SCALE

MACH 0.900

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS

YAWING MOMENT COEFFICIENT, CYN (BODY AXIS)



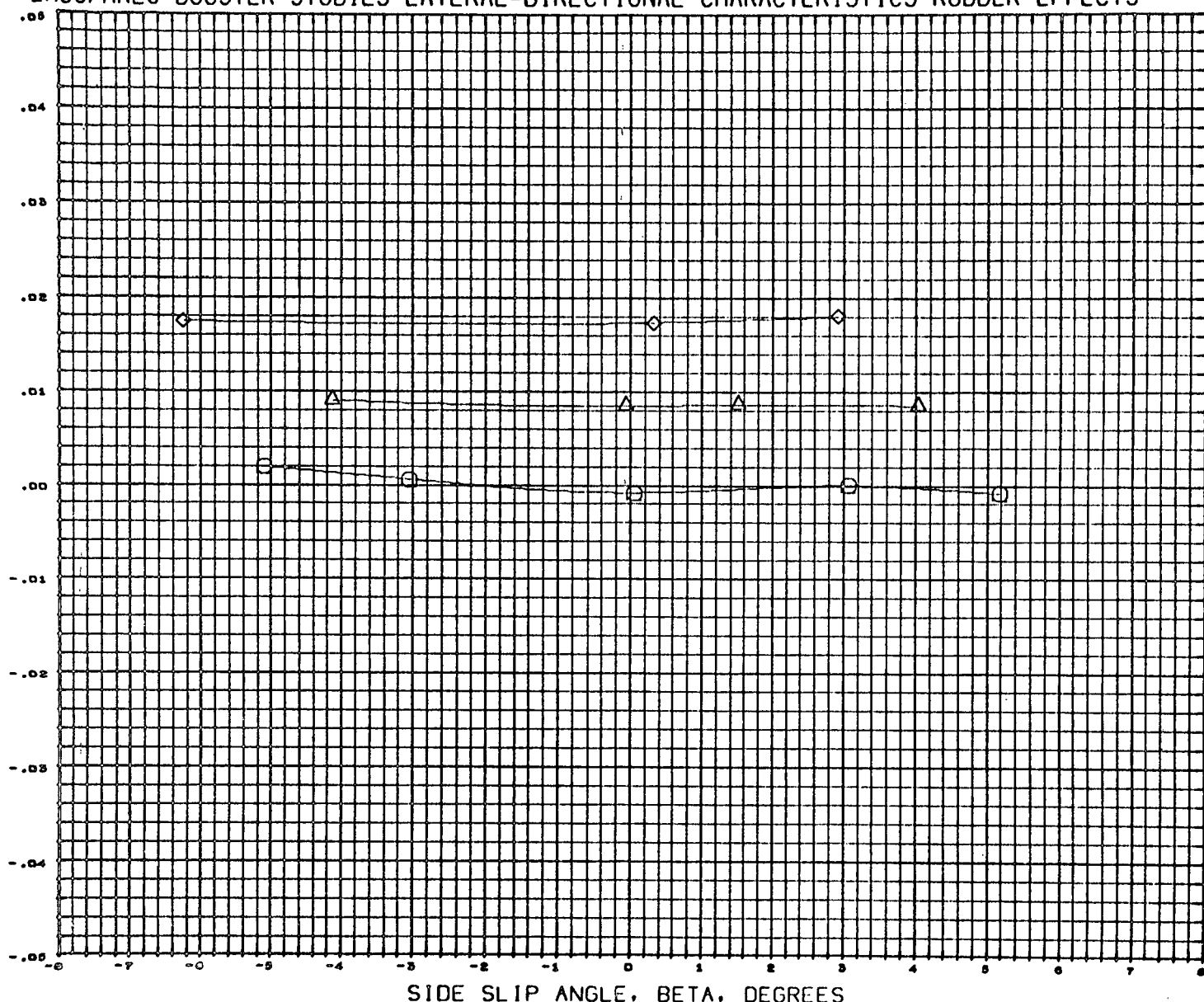
SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(RN3002)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.017	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3040)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.008	-5.000	0.000	0.000	LREF	3.4530 FEET
(RN3050)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.023	-10.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.9930 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 1.003

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS

YAWING MOMENT COEFFICIENT, CYN (BODY AXIS)



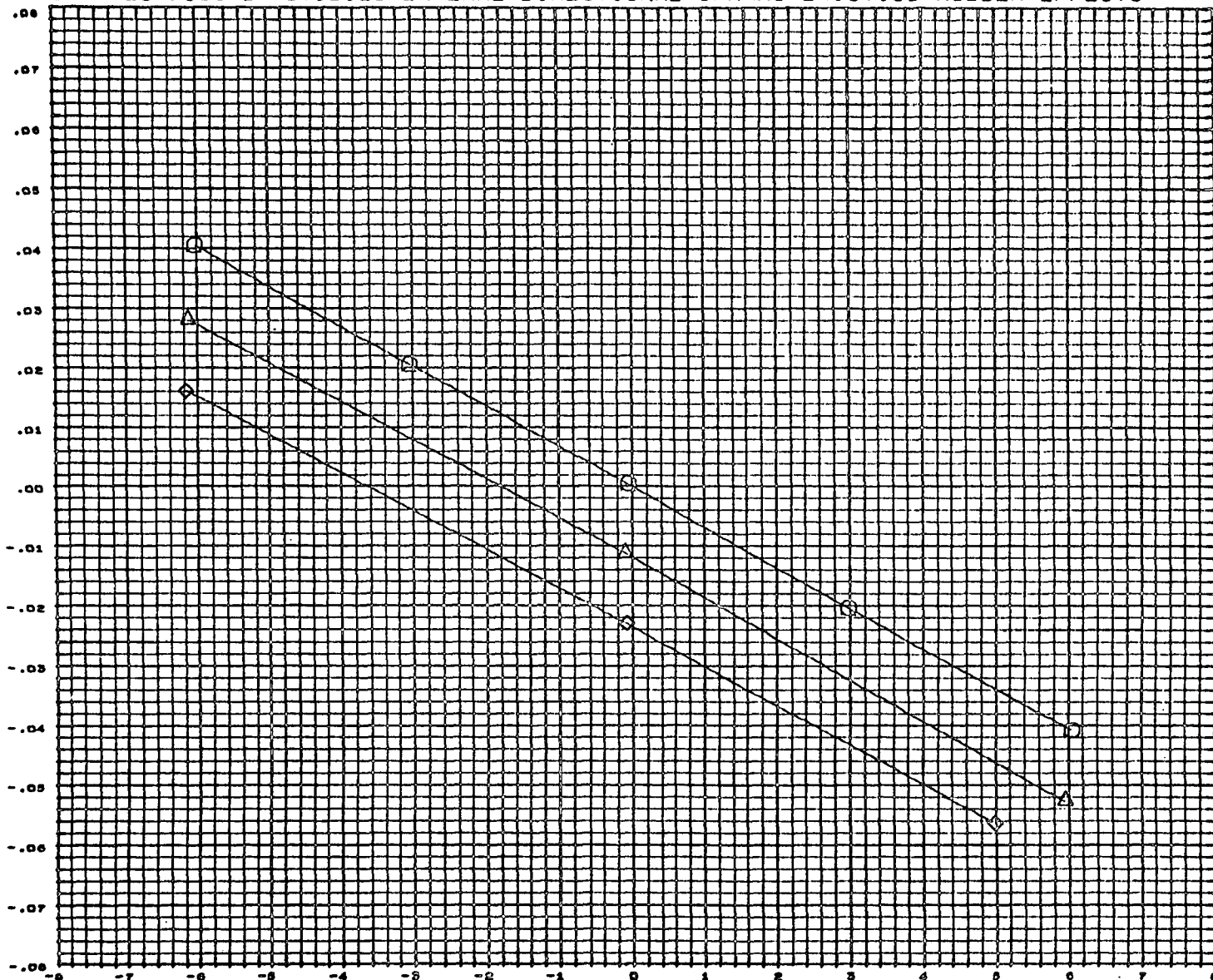
SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(RNS002)	NSRDC-3210, MSFC/LMSC BOOSTER 81C2F2W1V1	0.017	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(RNS048)	NSRDC-3210, MSFC/LMSC BOOSTER 81C2F2W1V1	0.006	-5.000	0.000	0.000	LREF	3.4530 FEET
(RNS050)	NSRDC-3210, MSFC/LMSC BOOSTER 81C2F2W1V1	0.023	-10.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 1.522

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)

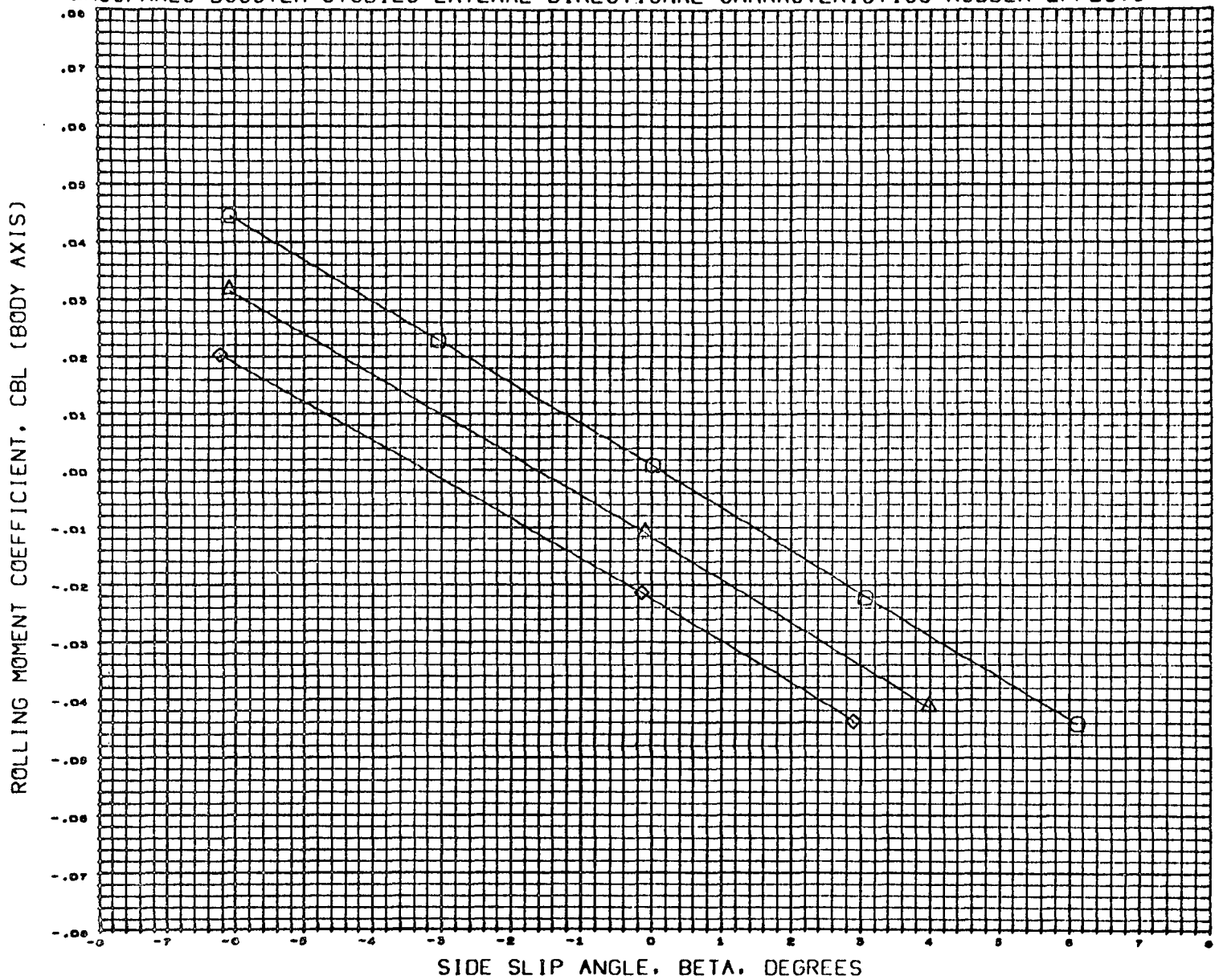


SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(R3002)	N8RDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.017	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(R3046)	N8RDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.008	-5.000	0.000	0.000	LREF	3.4530 FEET
(R3050)	N8RDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.023	-10.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.899

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS

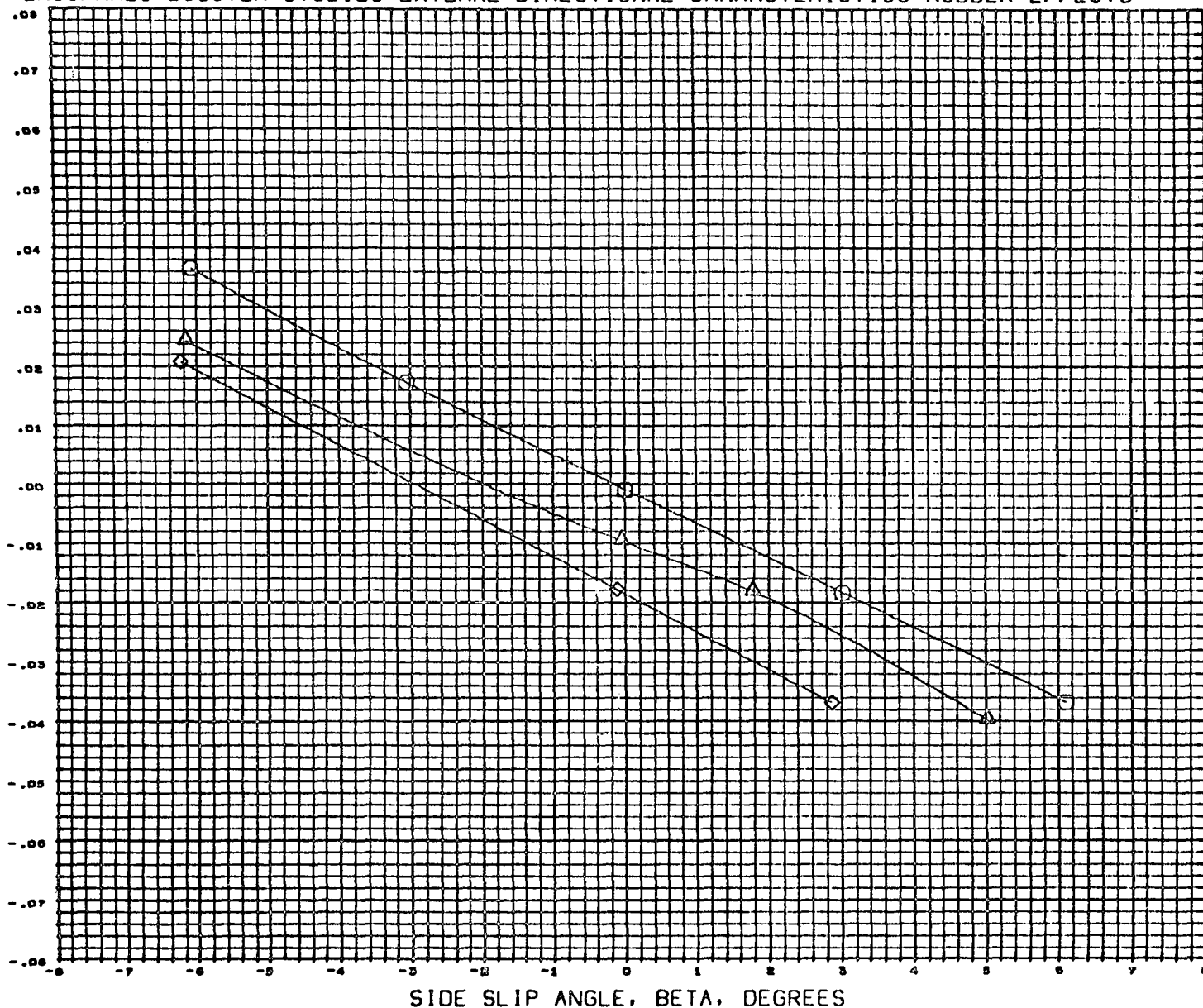


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(RN3002)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.017	0.000	0.000	0.000	SREF	1.3550 88.FT.
(RN3040)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.006	-5.000	0.000	0.000	LREF	3.4530 FEET
(RN3050)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.023	-10.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.800

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS

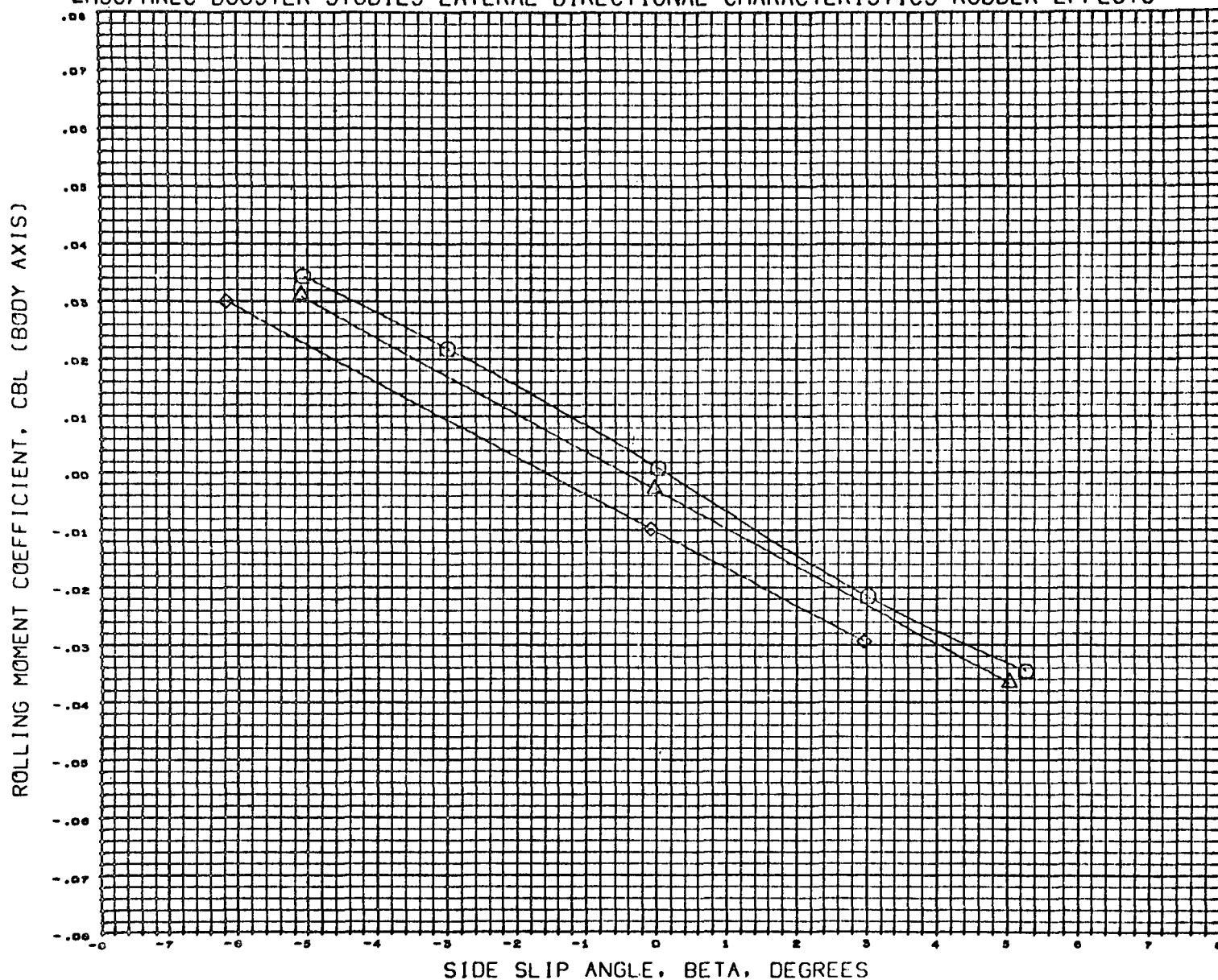
ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(R3002)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.017	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(R3046)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.006	-5.000	0.000	0.000	LREF	3.4530 FEET
(R3050)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.023	-10.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.900

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS

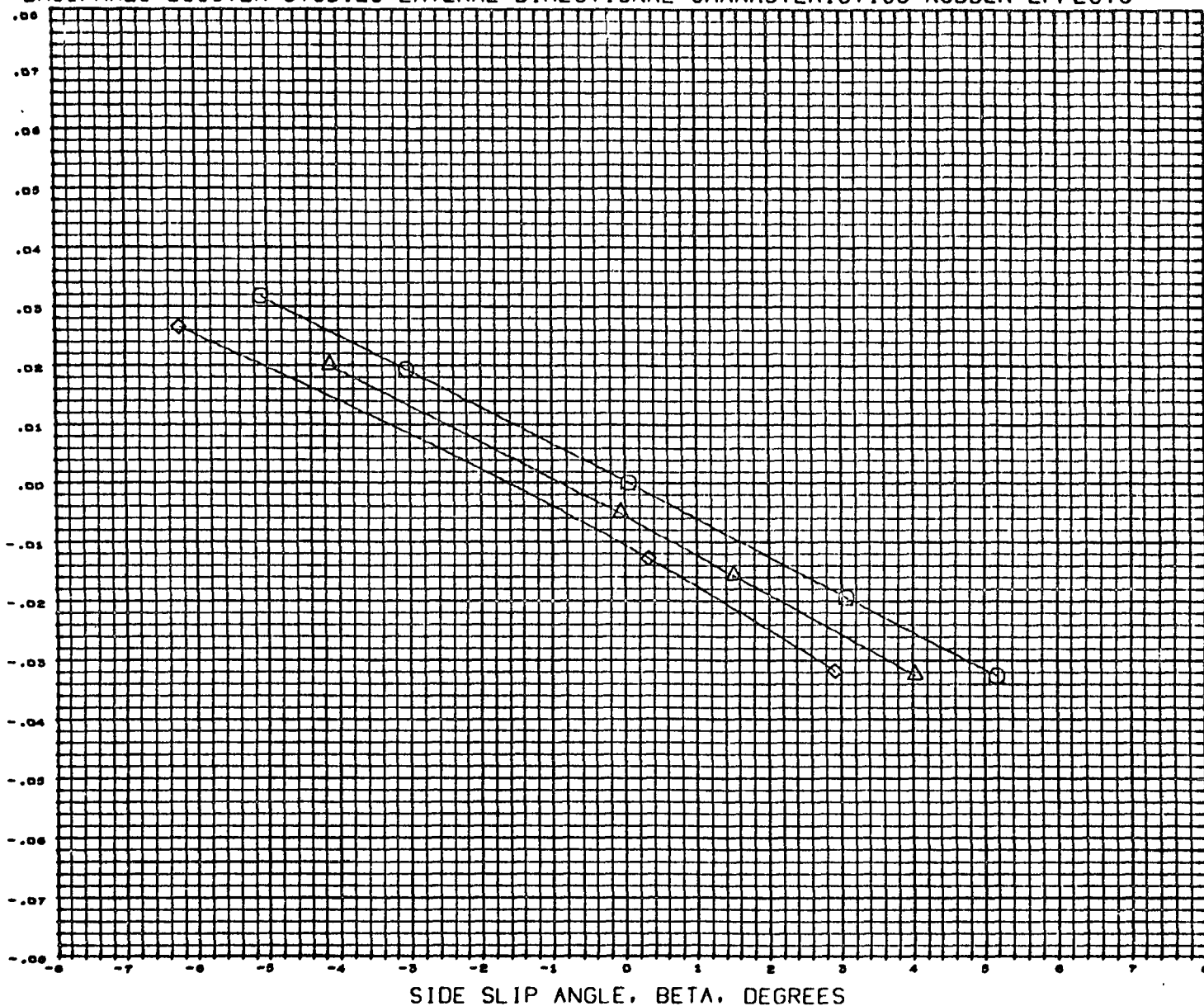


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(RNS002)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.017	0.000	0.000	0.000	SREF	1.3550 50.FT.
(RNS046)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.008	-3.000	0.000	0.000	LREF	3.4530 FEET
(RNS090)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.023	-10.000	0.000	0.000	BREF	3.4530 FEET
							XMRP	2.5950 FEET
							YMRP	0.0000 FEET
							ZMRP	0.0167 FEET
							SCALE	0.0150 SCALE

HACH 1.001

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS

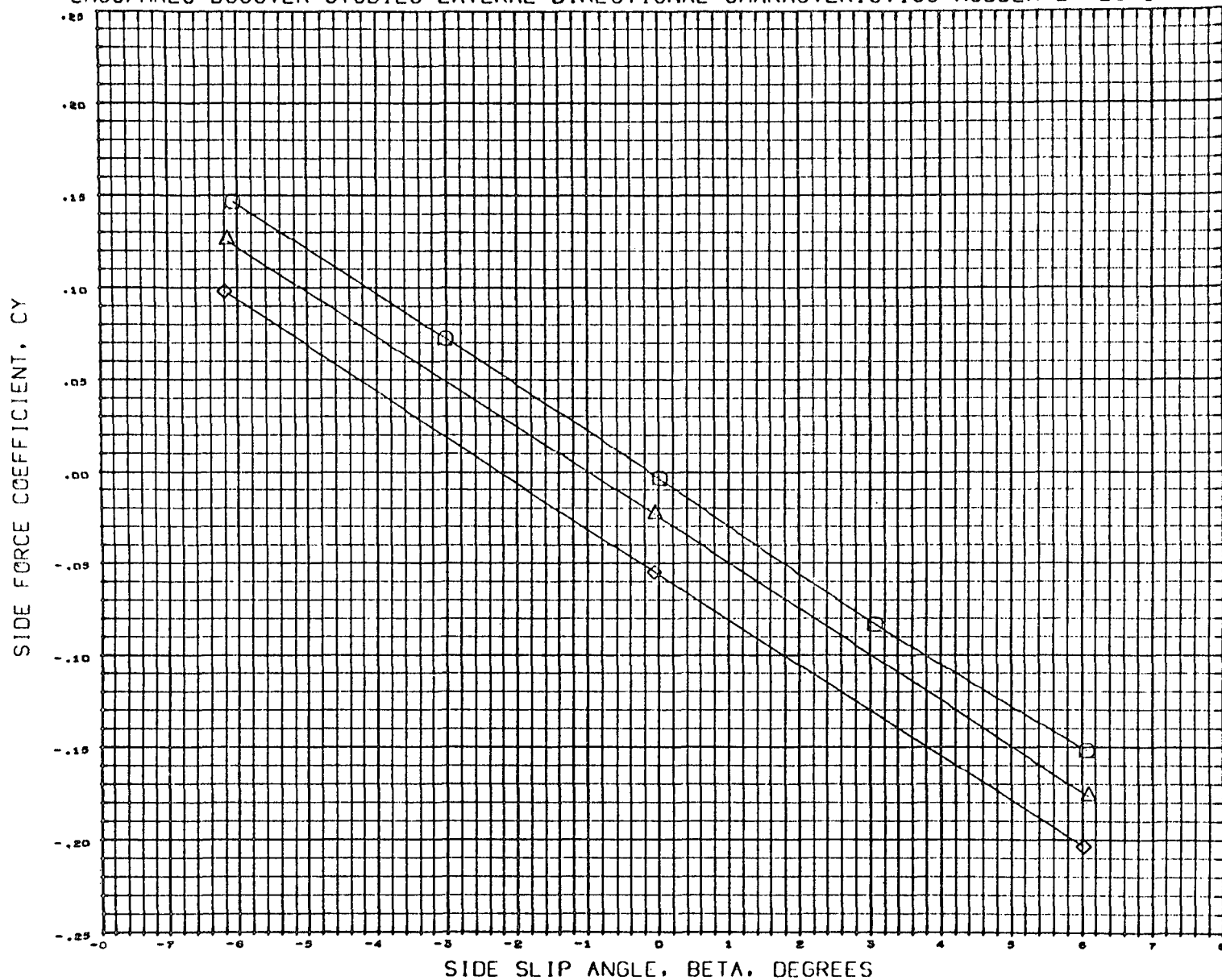
ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(RN3002)	NBRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.017	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(RN3046)	NBRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.008	-5.000	0.000	0.000	LREF	3.4530 FEET
(RN3050)	NBRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.023	-10.000	0.000	0.000	BREF	3.4530 FEET
						XMRF	2.5950 FEET
						YMRF	0.0000 FEET
						ZMRF	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 1.122

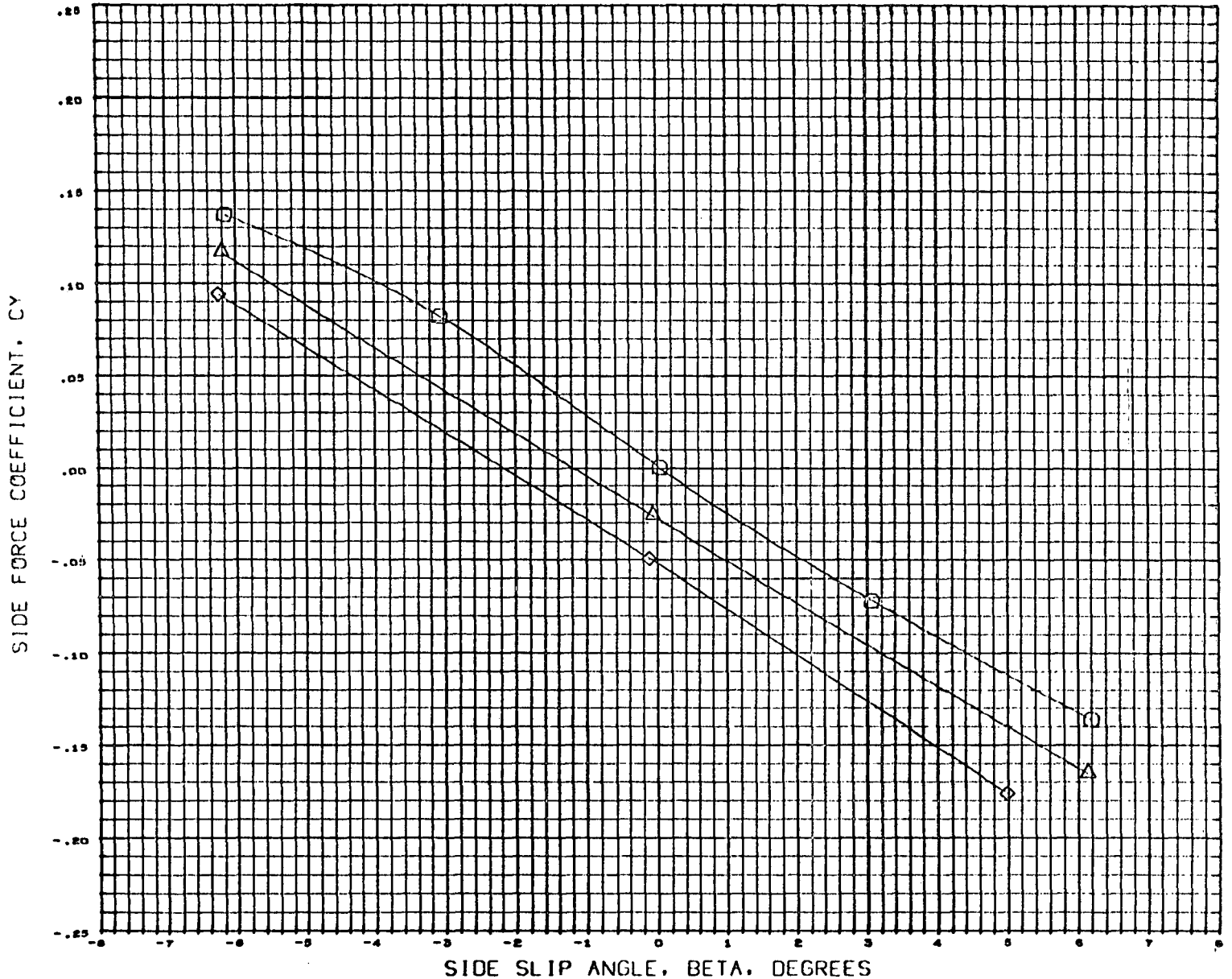
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(RN3003)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.135	0.000	0.000	0.000	SREF	1.3550 89.FT.
(RN3047)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.146	-5.000	0.000	0.000	LREF	3.4550 FEET
(RN3051)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.159	-10.000	0.000	0.000	BREF	3.4550 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.700

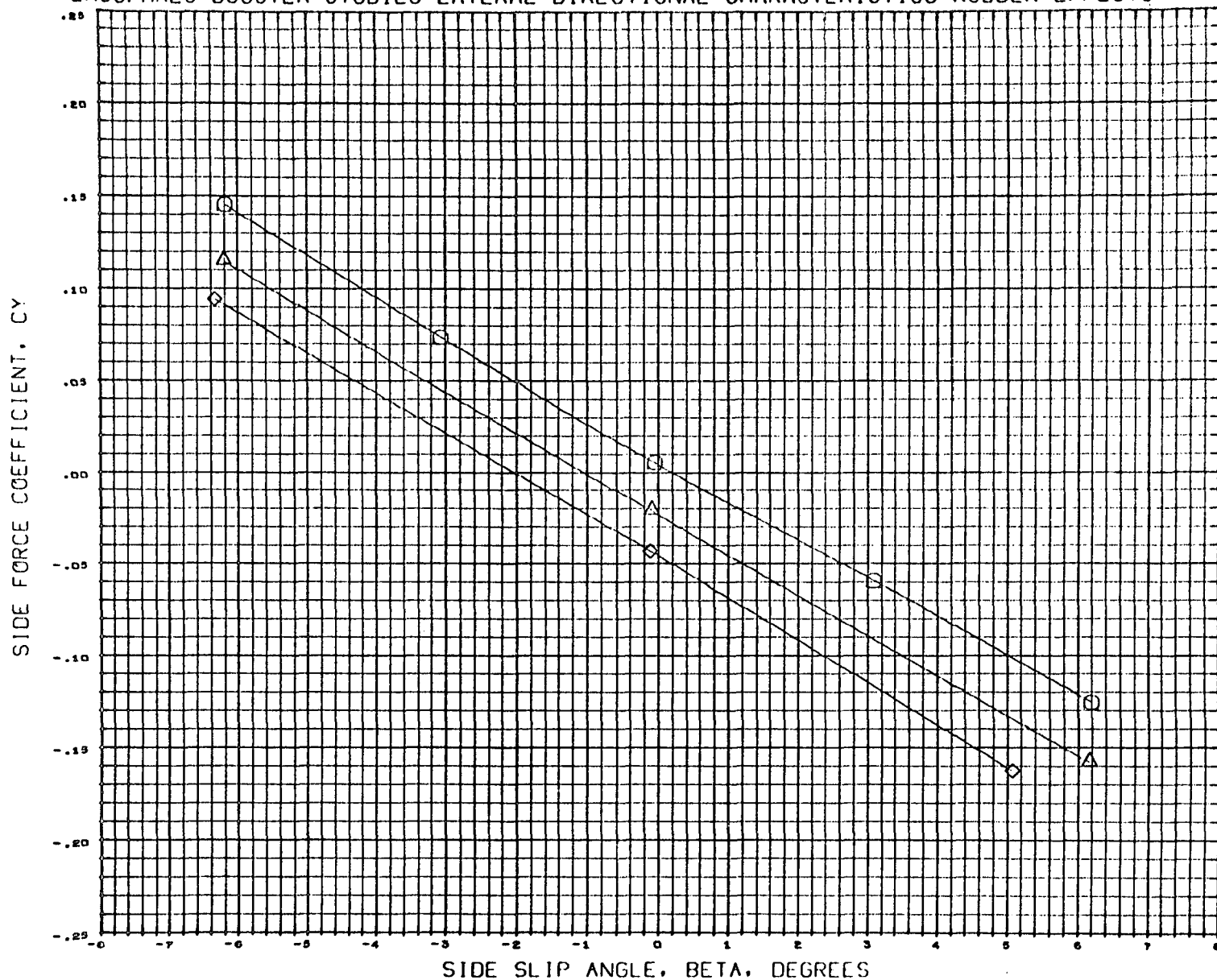
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(RN3003)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.135	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(AN3047)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.146	-5.000	0.000	0.000	LREF	3.4530 FEET
(RN3051)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.159	-10.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.600

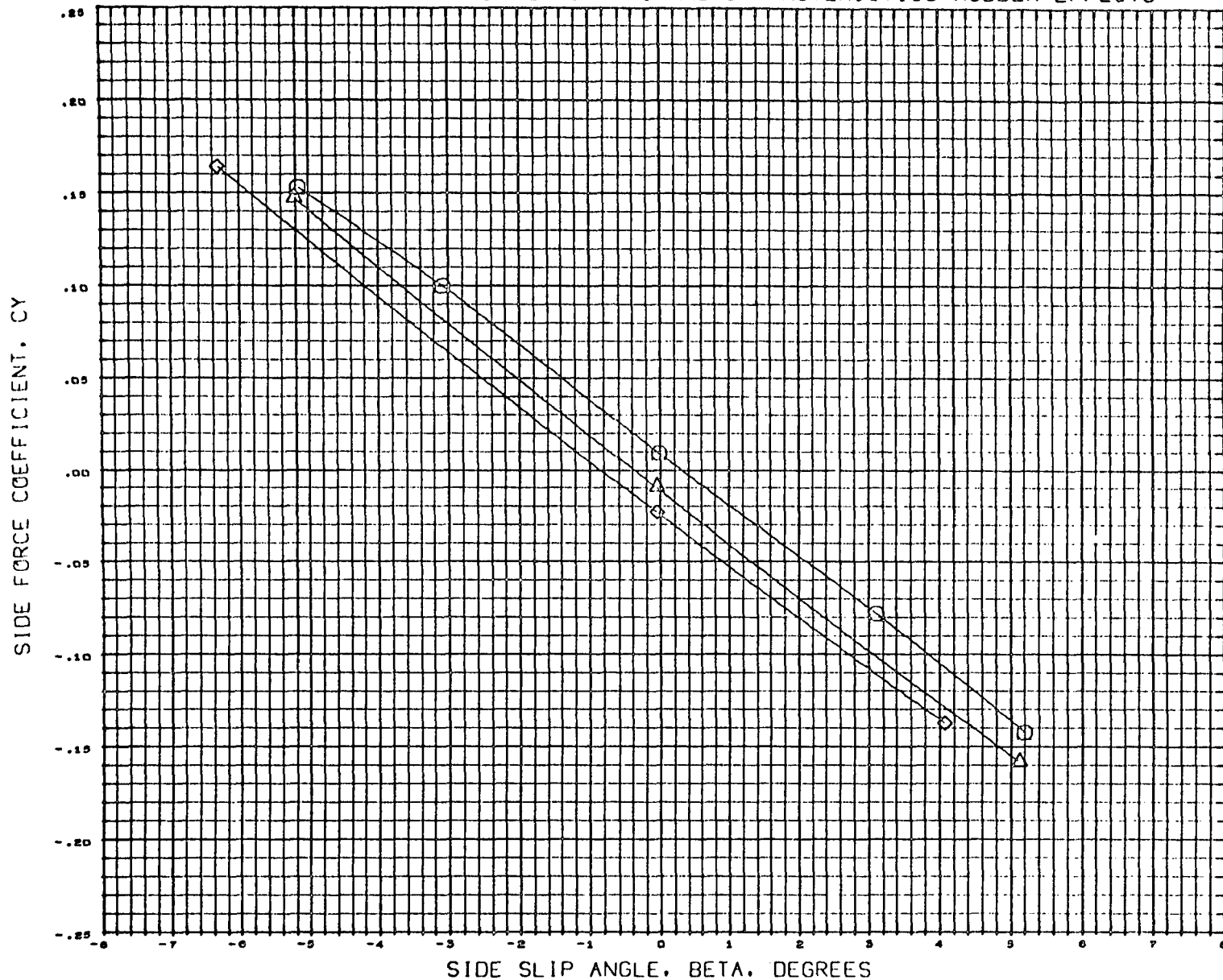
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(R3003)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	6.135	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(R3047)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	6.146	-5.000	0.000	0.000	LREF	3.4530 FEET
(R3051)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	6.159	-10.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.904

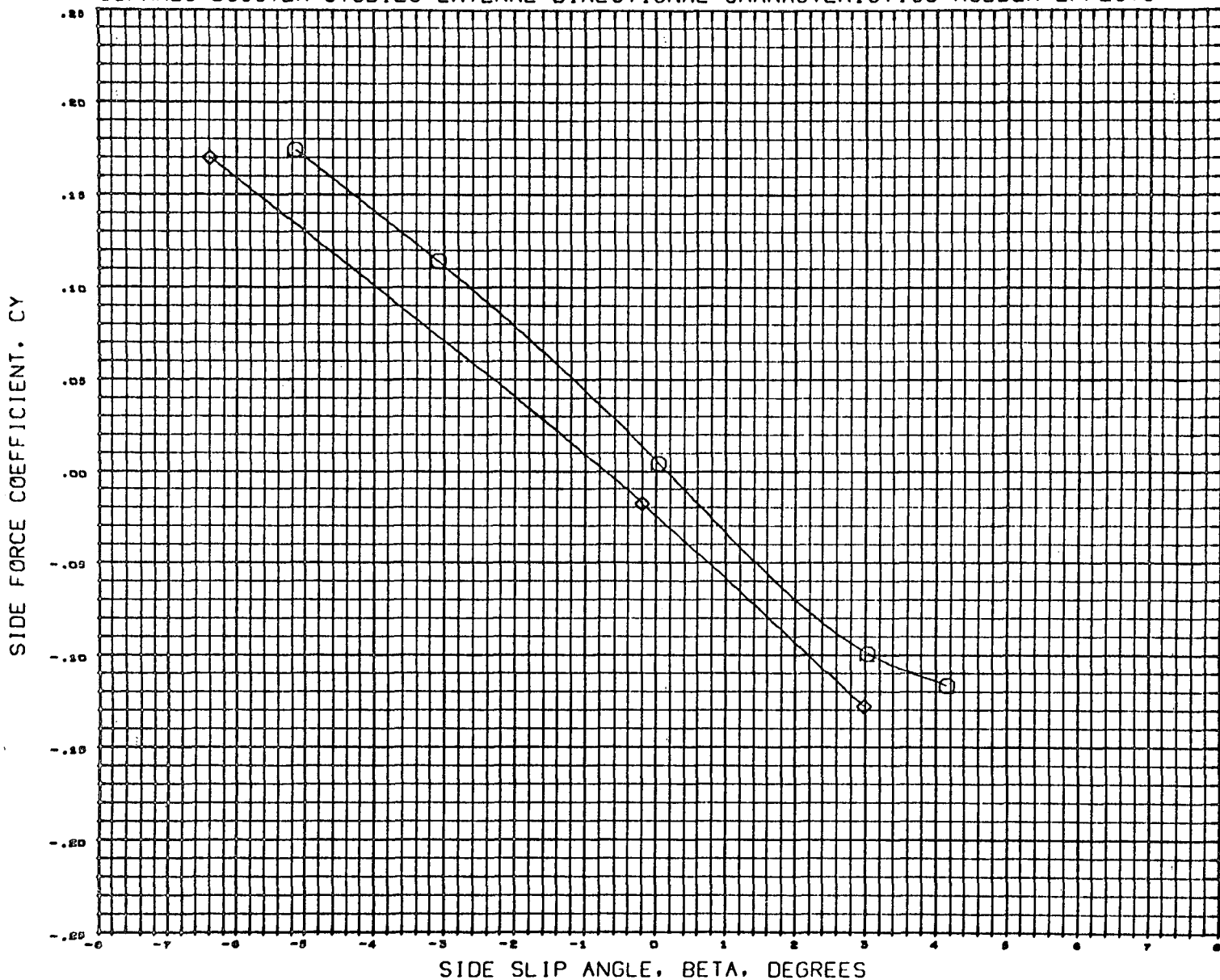
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(RN3003)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	6.135	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(AN3047)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	6.146	-5.000	0.000	0.000	LREF	3.4530 FEET
(RN3051)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	6.159	-10.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0190 SCALE

MACH 1.001

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS



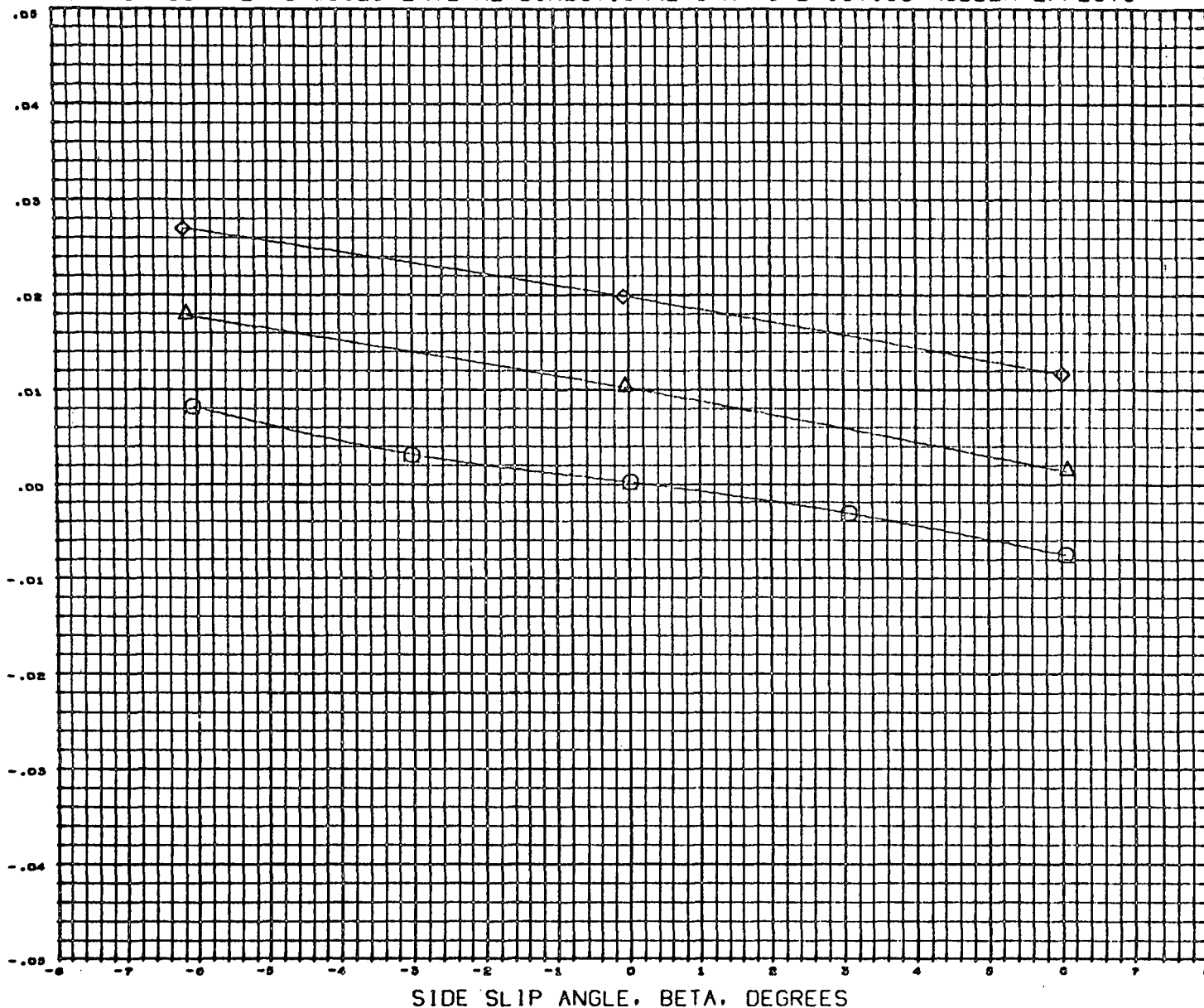
DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (RN3003) NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1
 (AN3047) DATA NOT AVAILABLE FOR ALL CONDITIONS
 (RN3051) NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1

ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
6.135	0.000	0.000	0.000	SREF 1.3550 SQ. FT.
6.146	-5.000	0.000	0.000	LREF 3.4530 FEET
6.159	-10.000	0.000	0.000	BREF 3.4530 FEET
				XMRP 2.5950 FEET
				YMRP 0.0000 FEET
				ZMRP 0.0167 FEET
				SCALE 0.0150 SCALE

MACH 3.124

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS

YAWING MOMENT COEFFICIENT, CYN (BODY AXIS)

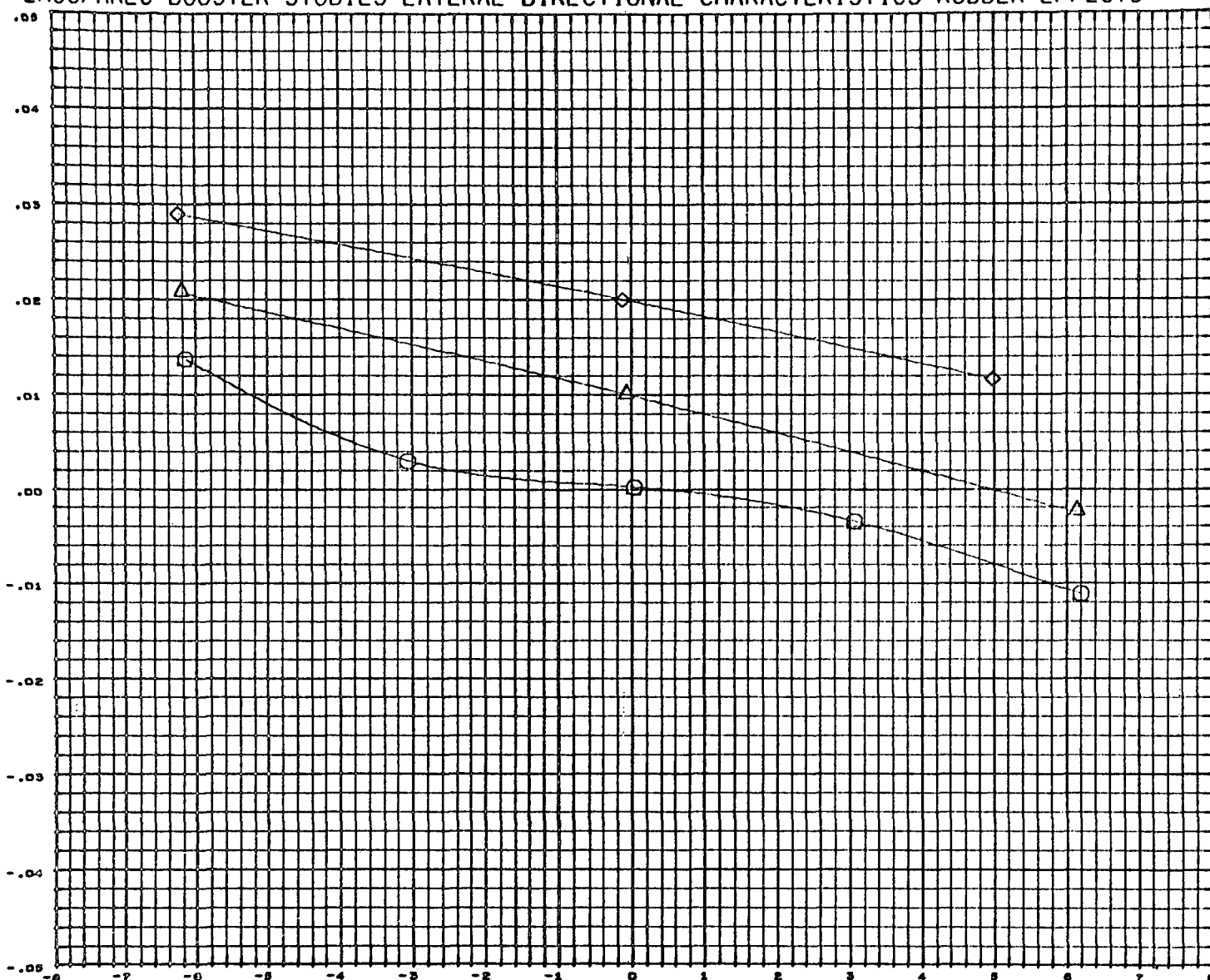


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(RN3003)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.135	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(AN3047)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.146	-5.000	0.000	0.000	LREF	3.4530 FEET
(RN3051)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.159	-10.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.700

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS

YAWING MOMENT COEFFICIENT, CYN (BODY AXIS)



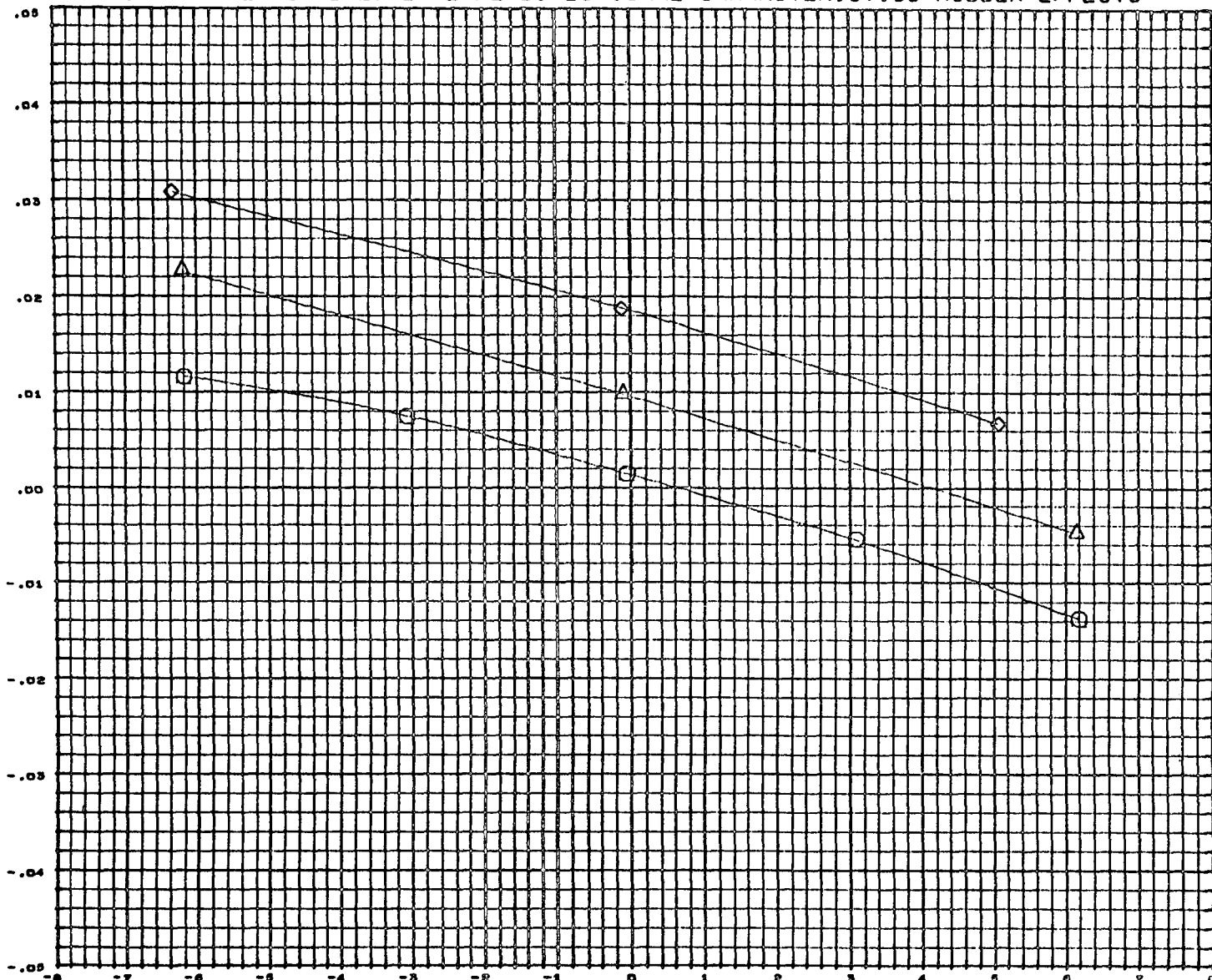
SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(RN3003)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.135	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(AN3047)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.146	-5.000	0.000	0.000	LREF	3.4530 FEET
(RN3051)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.159	-10.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.8950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.800

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS

YAWING MOMENT COEFFICIENT, CYN (BODY AXIS)



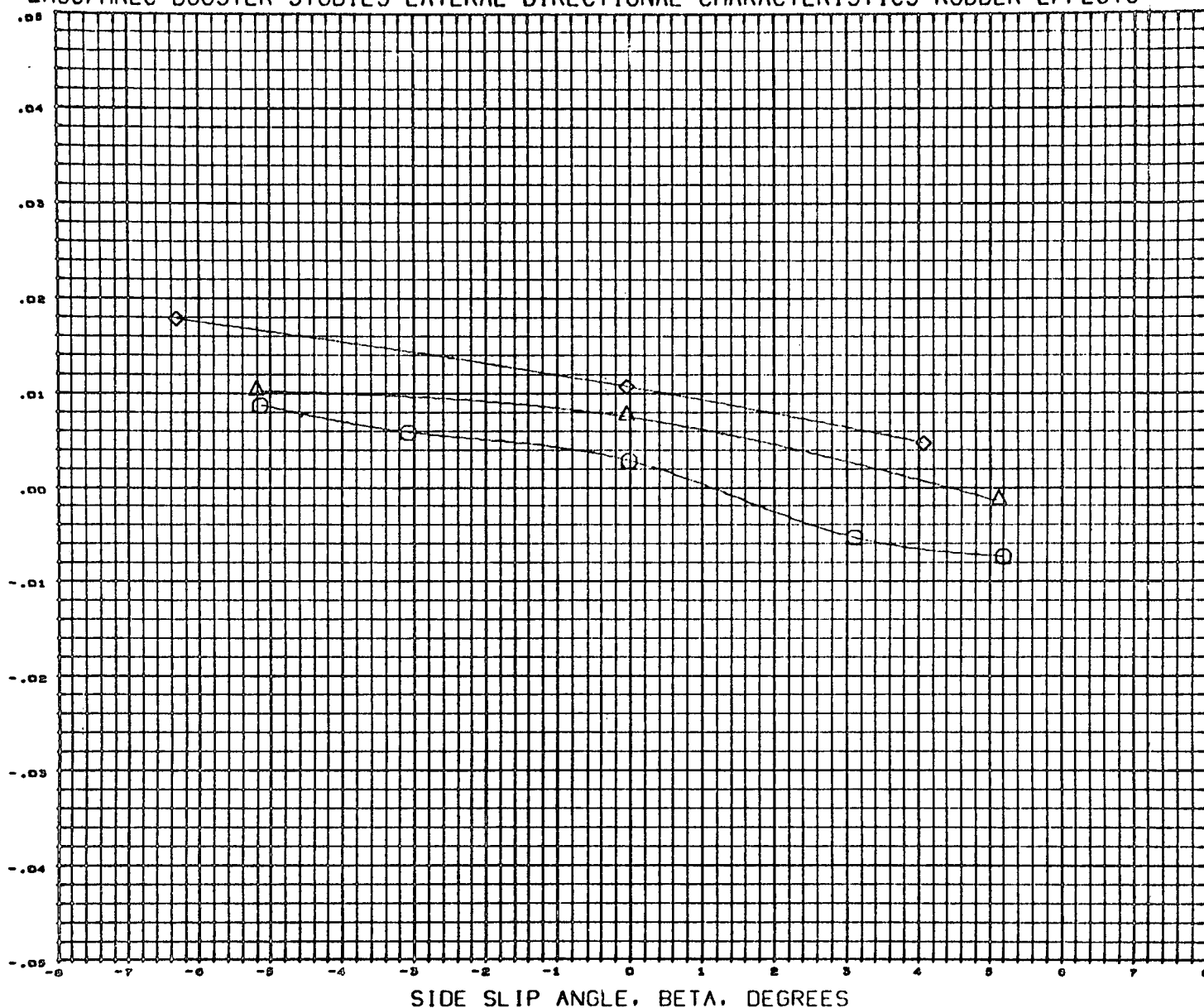
SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(R3003)	N8RDC-3210, M8FC/LMSC BOOSTER B1C2F2W1V1	0.135	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(R3004)	N8RDC-3210, M8FC/LMSC BOOSTER B1C2F2W1V1	0.146	-9.000	0.000	0.000	LREF	3.4550 FEET
(R3005)	N8RDC-3210, M8FC/LMSC BOOSTER B1C2F2W1V1	0.159	-10.000	0.000	0.000	BREF	3.4550 FEET
						XMRP	2.5050 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.904

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS

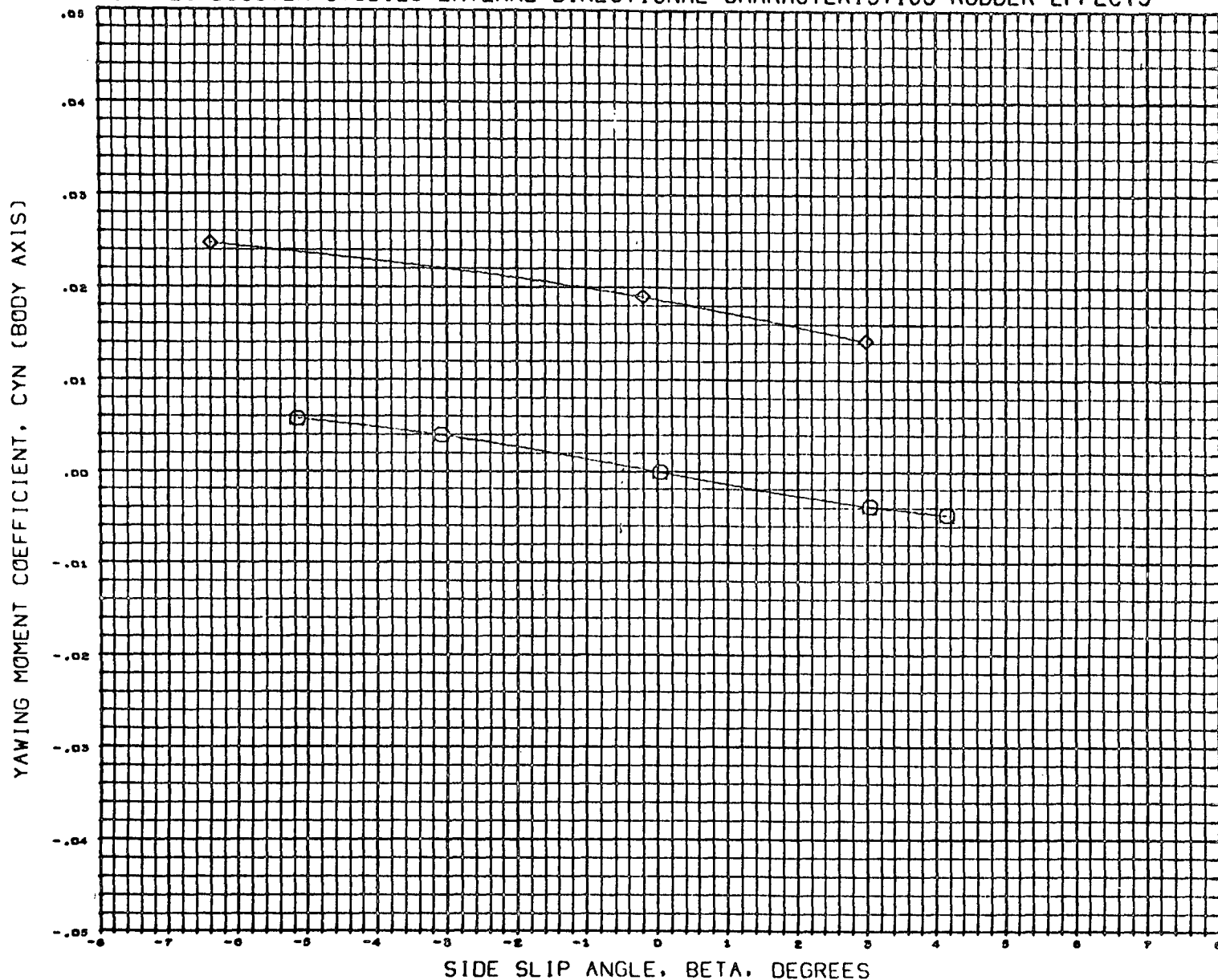
YAWING MOMENT COEFFICIENT, CYN (BODY AXIS)



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(RN3003)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.135	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(AN3047)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.146	-5.000	0.000	0.000	LREF	3.4530 FEET
(RN3031)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.159	-10.000	0.000	0.000	BREF	3.4530 FEET
							XMRP	2.9950 FEET
							YMRP	0.0000 FEET
							ZMRP	0.0167 FEET
							SCALE	0.0150 SCALE

MACH 1.001

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS

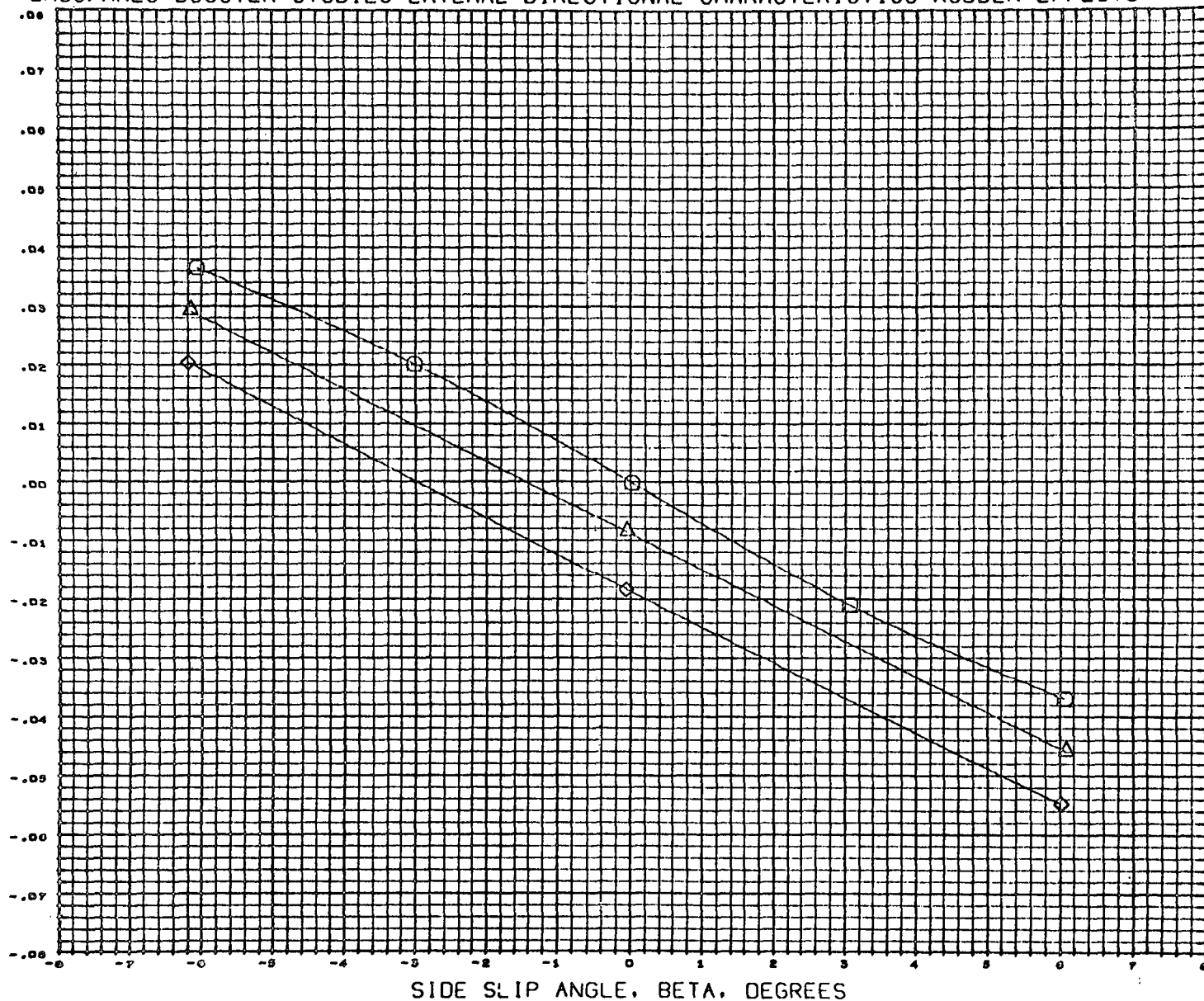


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(RM3003)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	6.135	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(AN3047)	DATA NOT AVAILABLE FOR ALL CONDITIONS	6.146	-5.000	0.000	0.000	LREF	3.4330 FEET
(RM3051)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	6.150	-10.000	0.000	0.000	BREF	3.4330 FEET
						XMRP	2.0050 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 1.124

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)



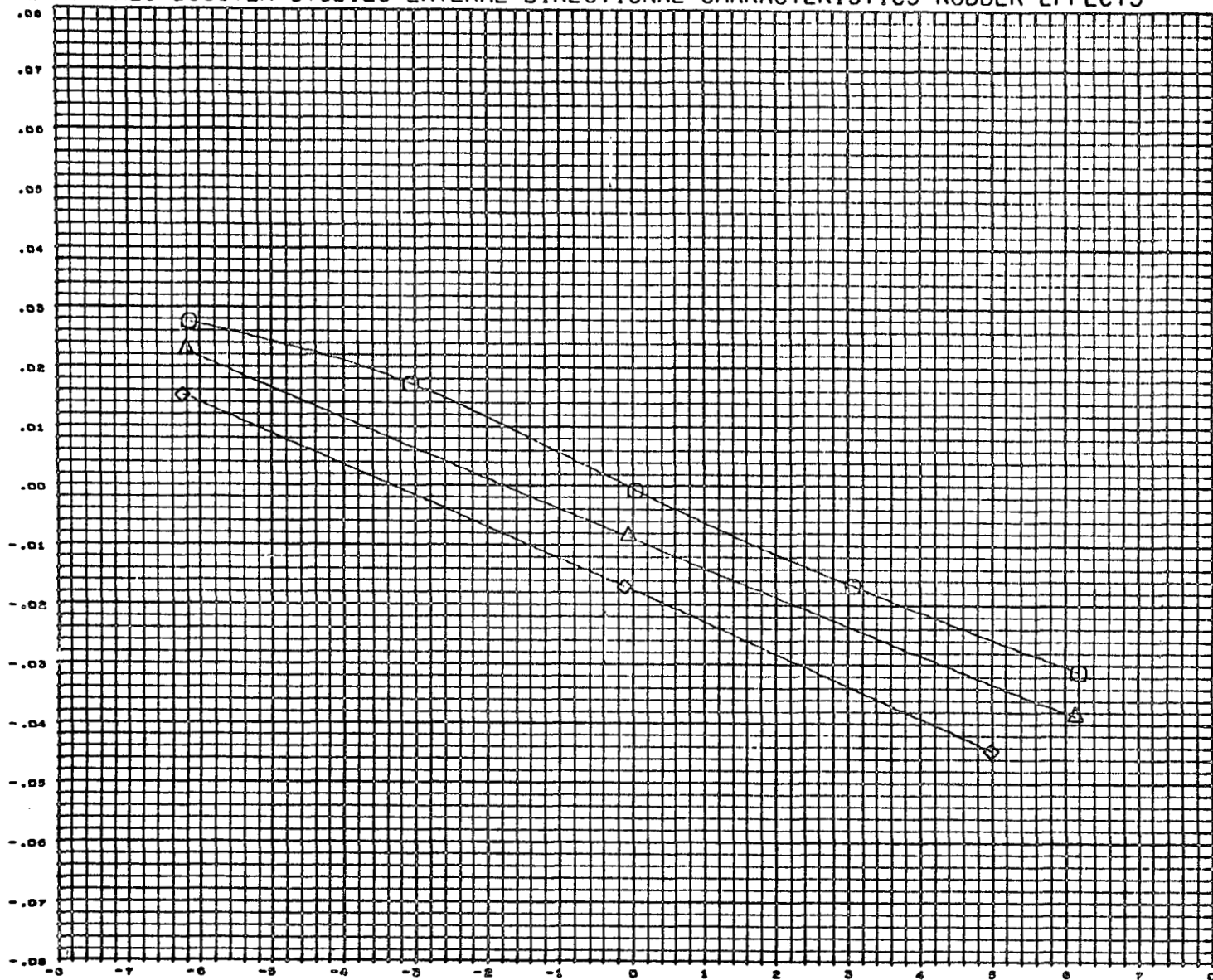
DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(RNS003)	NSRDC-3210, M8FC/LMSC BOOSTER B1C2F2W1V1	6.135	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(ANS047)	NSRDC-3210, M8FC/LMSC BOOSTER B1C2F2W1V1	6.146	-5.000	0.000	0.000	LREF	3.4530 FEET
(RNS051)	NSRDC-3210, M8FC/LMSC BOOSTER B1C2F2W1V1	6.159	-10.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.9990 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH

0.700

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)



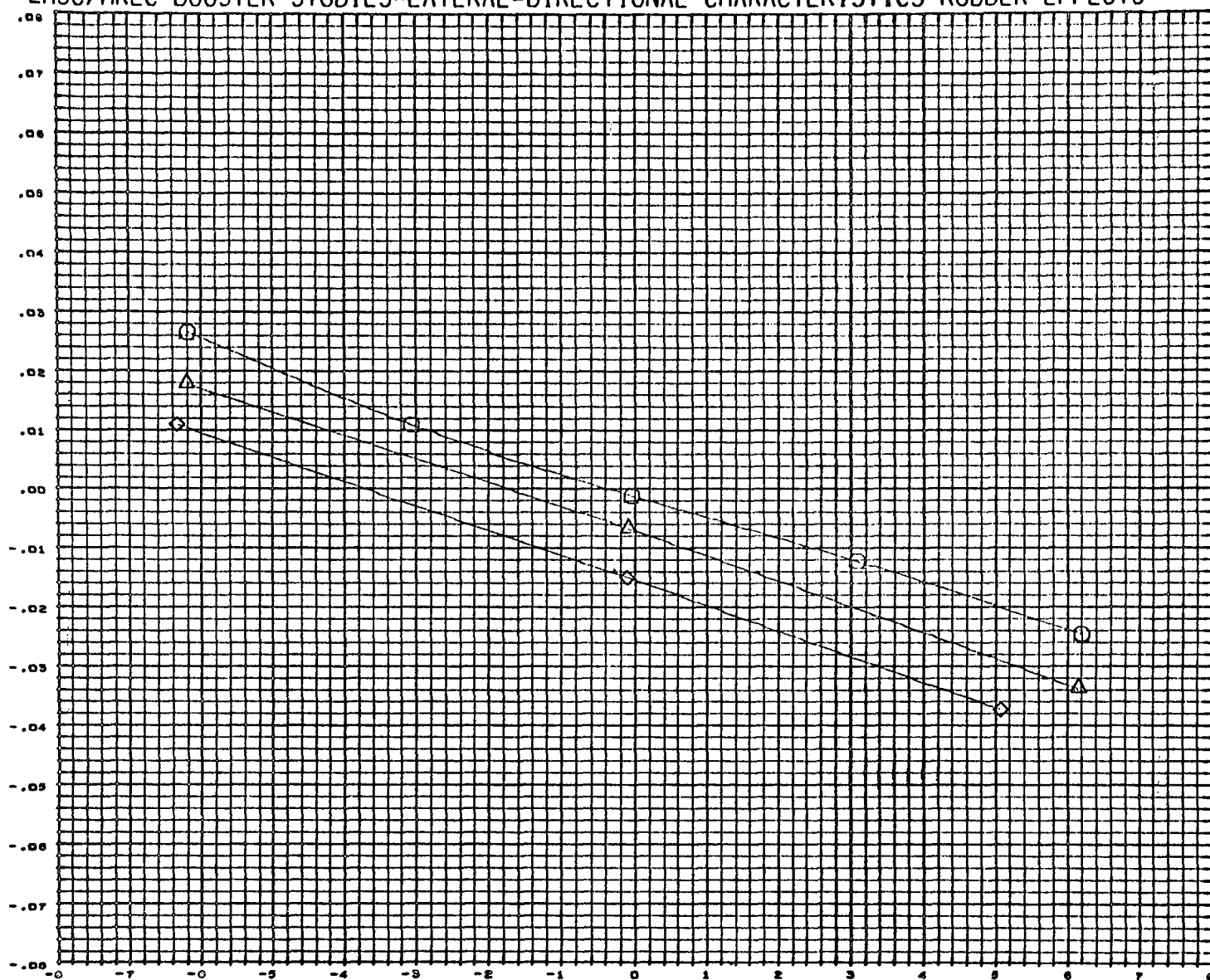
SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(RNS003)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.135	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(ANS047)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.146	-5.000	0.000	0.000	LREF	3.4530 FEET
(RNS051)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.159	-10.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.9990 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.800

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)



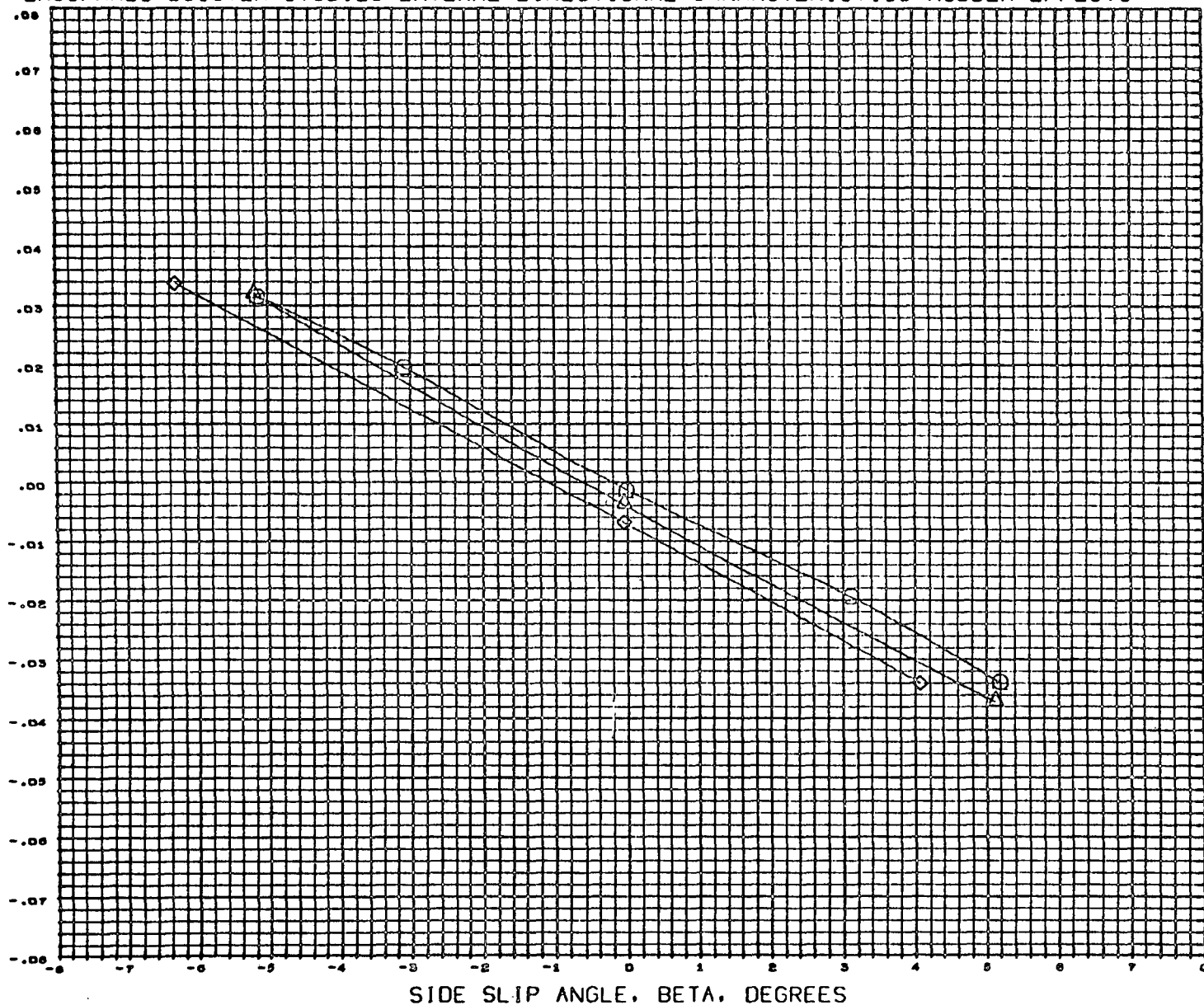
SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(RN3003)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.133	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(AN3047)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.146	-5.000	0.000	0.000	LREF	3.4530 FEET
(RN3051)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.159	-10.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.004

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)

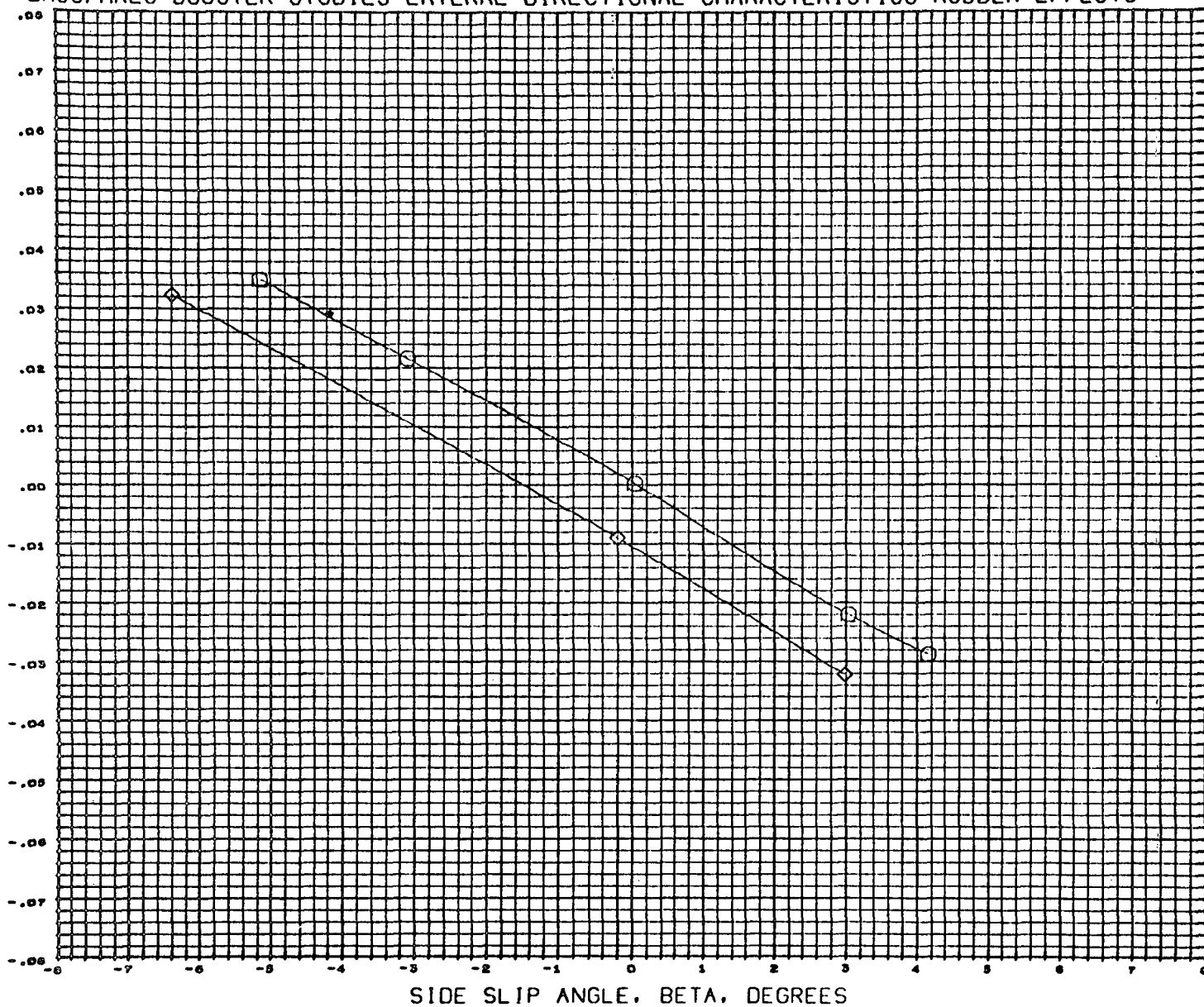


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION		
(RN3003)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.135	0.000	0.000	0.000	DREF	1.3550 SQ.FT.	
(AN3047)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.146	-5.000	0.000	0.000	LREF	3.4550 FEET	
(RN3051)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.159	-10.000	0.000	0.000	BREF	3.4550 FEET	
						YMRP	2.9950 FEET	
						ZMRP	0.0000 FEET	
						SCALE	0.0167 FEET	
							SCALE	0.0150

MACH 1.001

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)

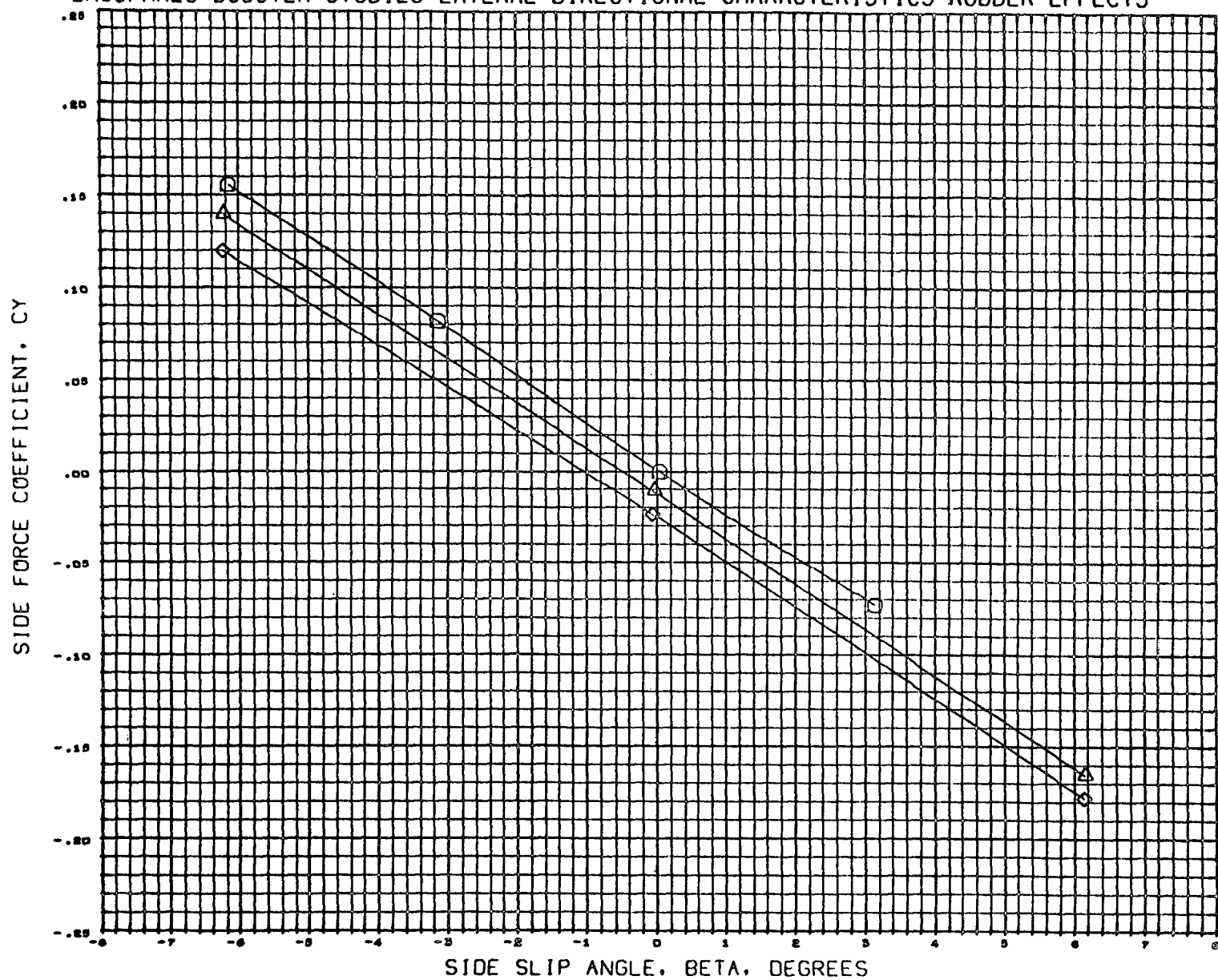


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(RNS003)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	6.135	0.000	0.000	0.000	SREF	1.3590 SQ. FT.
(ANS047)	DATA NOT AVAILABLE FOR ALL CONDITIONS	6.146	-5.000	0.000	0.000	LREF	3.4530 FEET
(RNS051)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	6.159	-10.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH

5.124

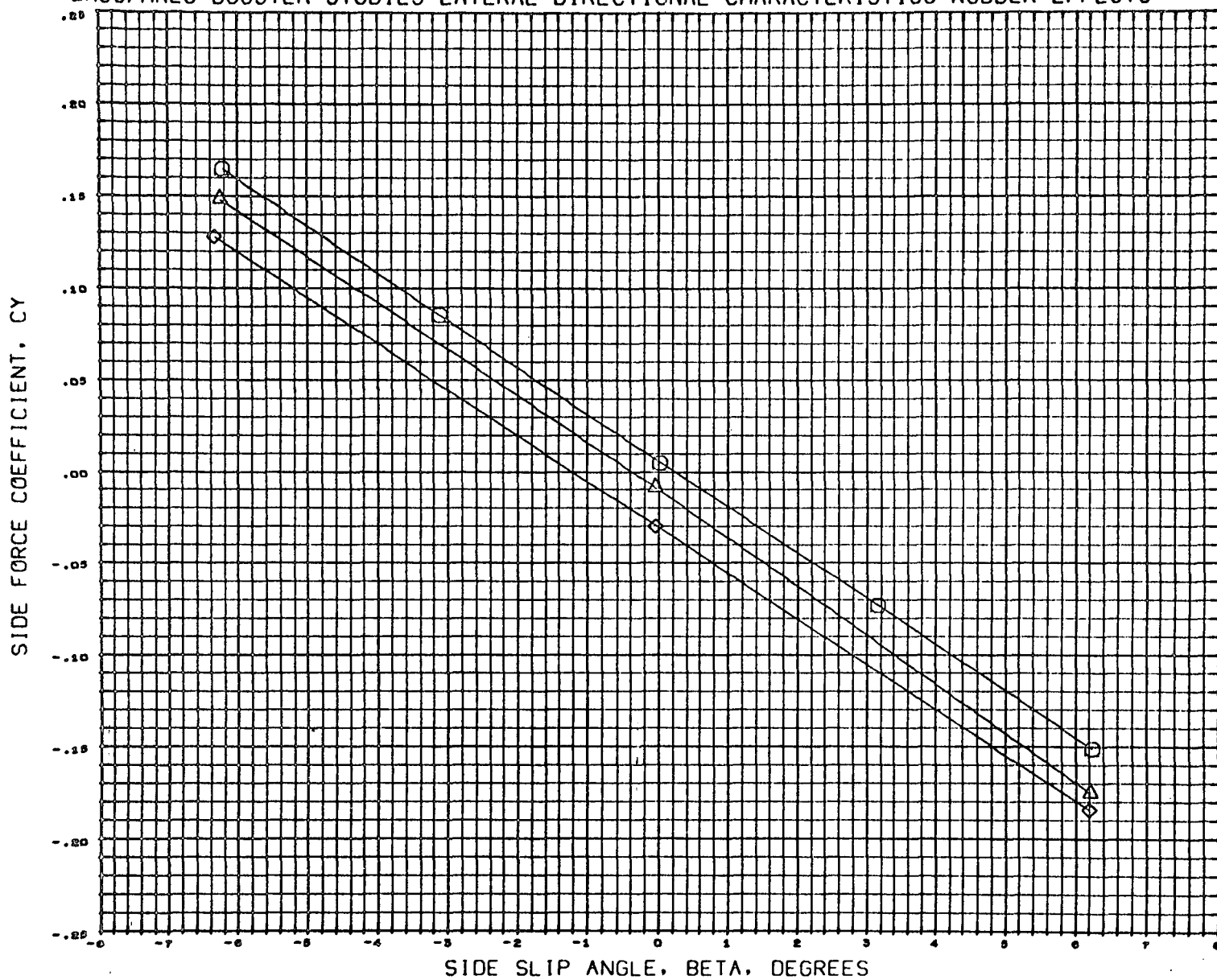
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(RN3004)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.440	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3040)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.469	-9.000	0.000	0.000	LREF	3.4630 FEET
(RN3032)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.508	-10.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.9980 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.702

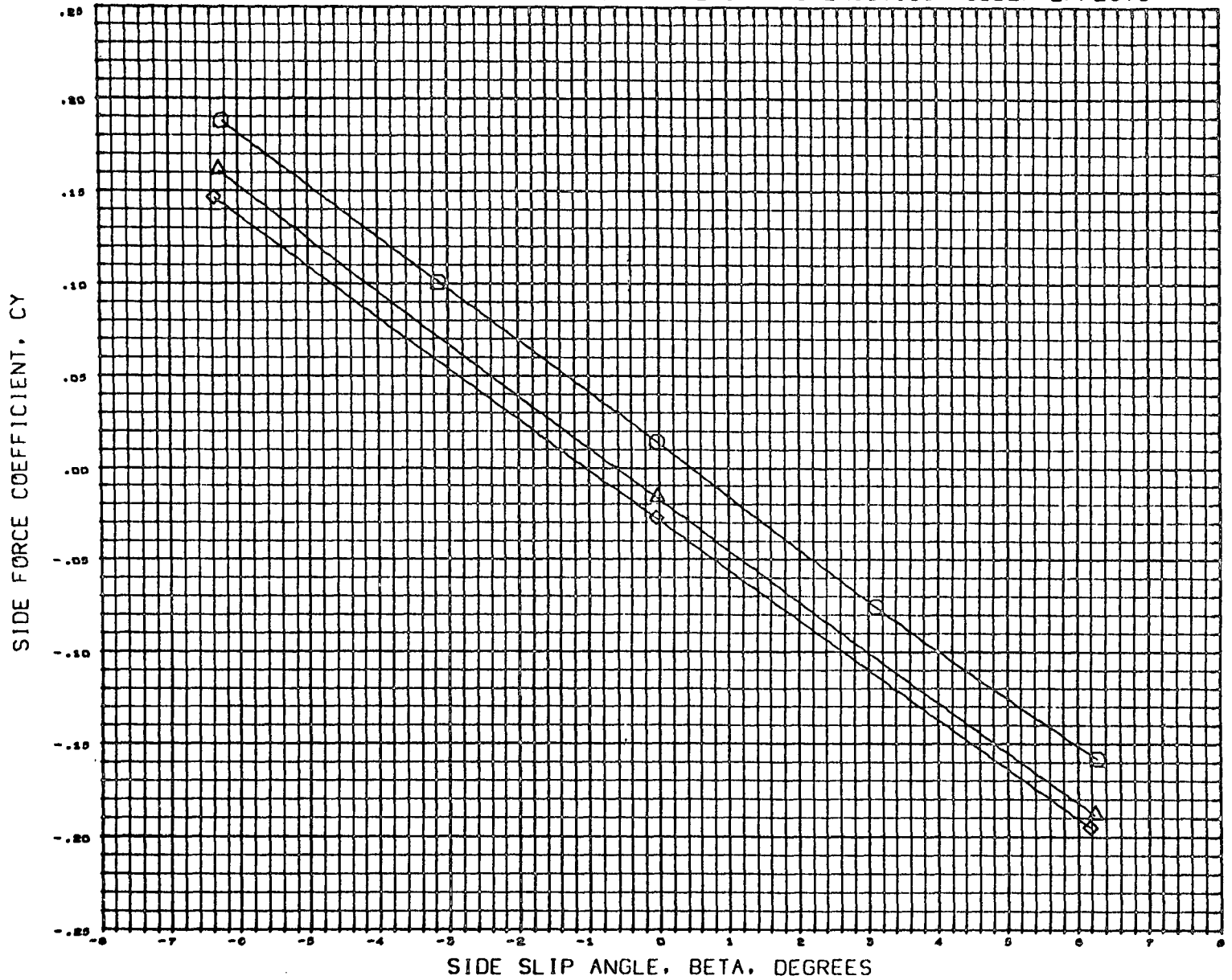
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(RN3004)	○	NBRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.440	0.000	0.000	0.000	SREF	1.3950 SQ. FT.
(RN3040)	△	NBRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.469	-5.000	0.000	0.000	LREF	3.4930 FEET
(RN3092)	◇	NBRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.508	-10.000	0.000	0.000	BREF	3.4930 FEET
							XMRP	2.5030 FEET
							YMRP	0.0000 FEET
							ZMRP	0.0187 FEET
							SCALE	0.0150 SCALE

MACH 0.000

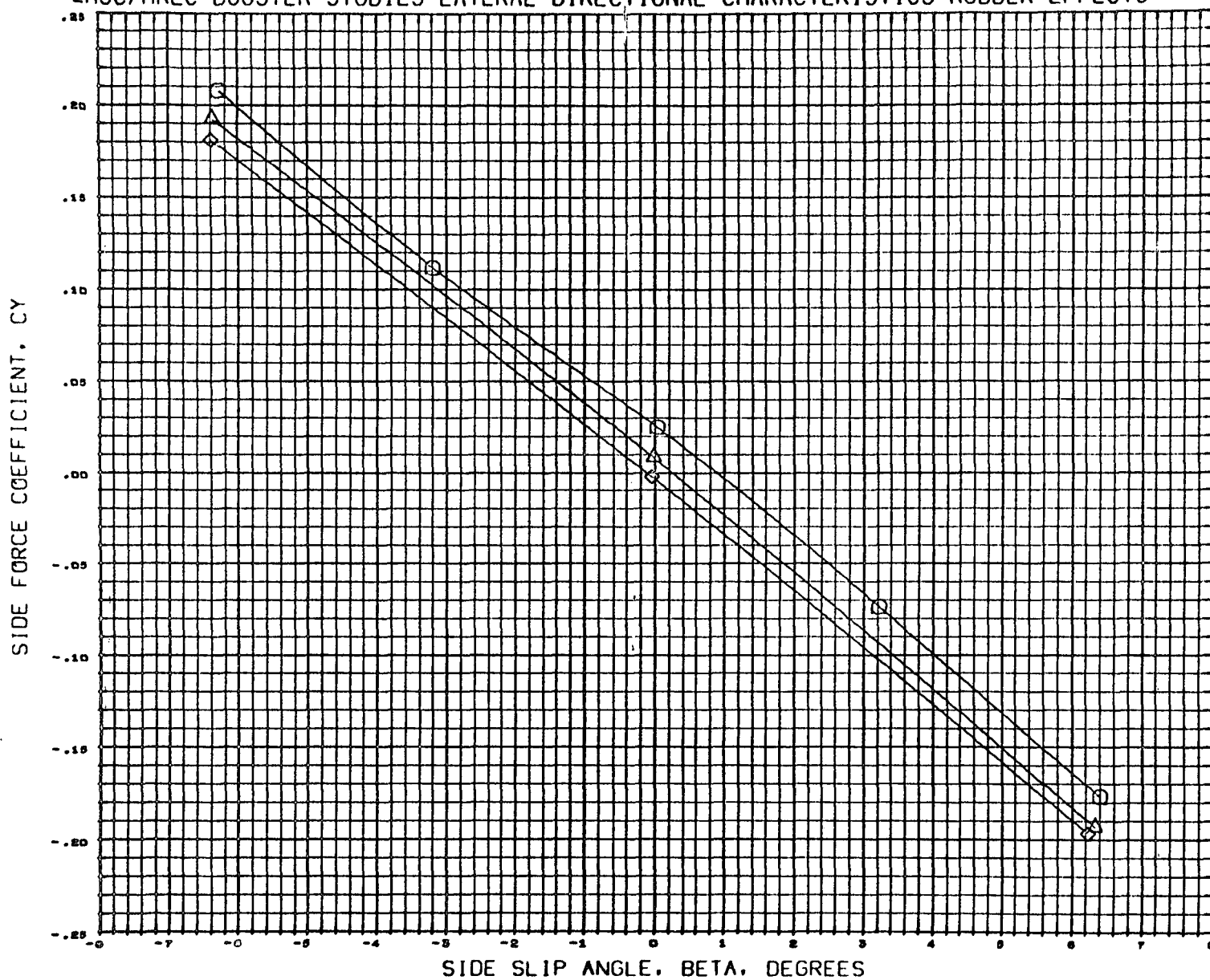
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(RN3004)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.440	0.000	0.000	0.000	BREF	1.3550 SQ.FT.
(RN3040)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.469	-5.000	0.000	0.000	LREF	3.4530 FEET
(RN3052)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.508	-10.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.8950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.903

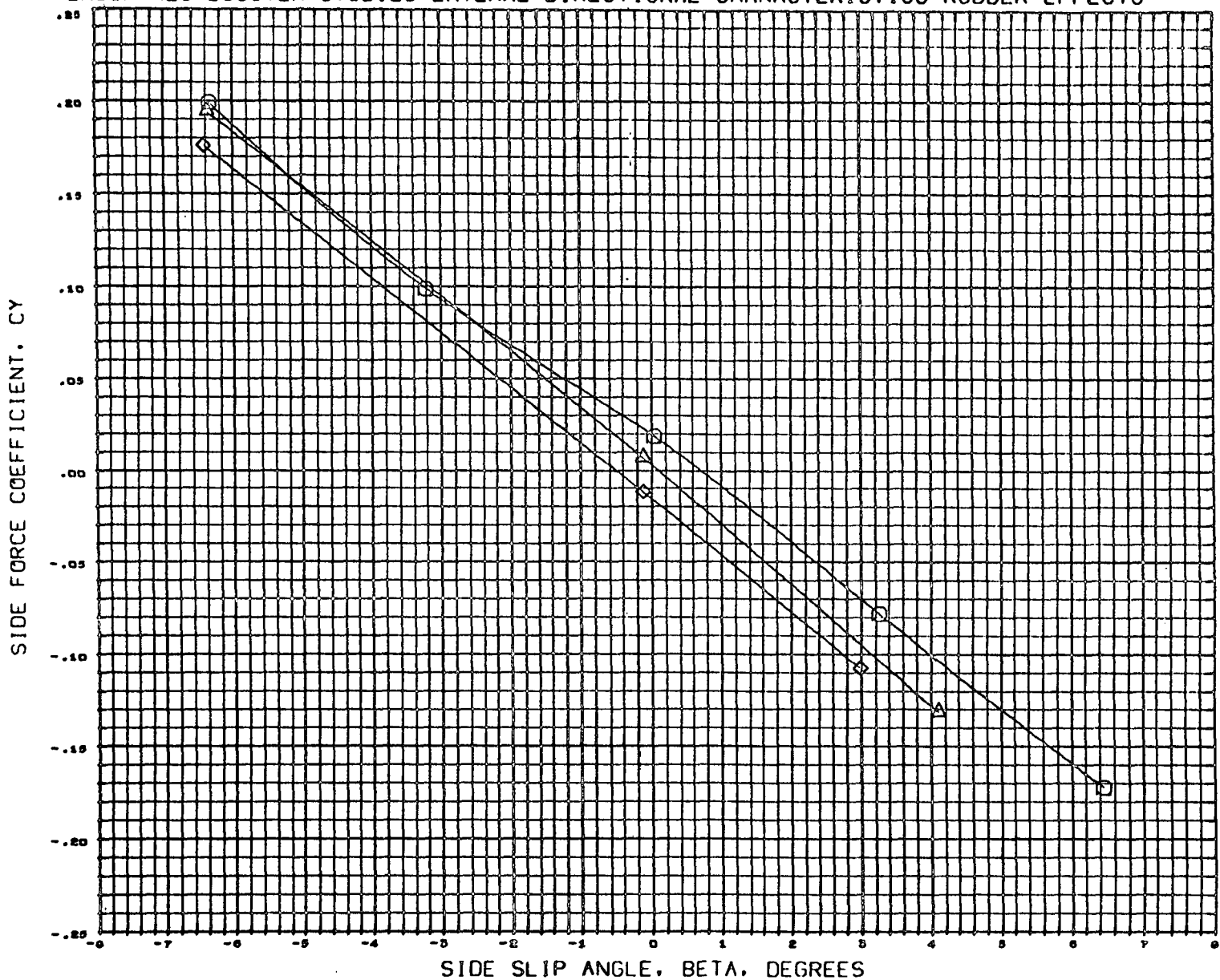
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(RN3004)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.440	0.000	0.000	0.000	SREF	1.3850 SQ.FT.
(RN3040)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.469	-5.000	0.000	0.000	LREF	5.4530 FEET
(RN3092)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.508	-10.000	0.000	0.000	BREF	3.4550 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 1.001

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS

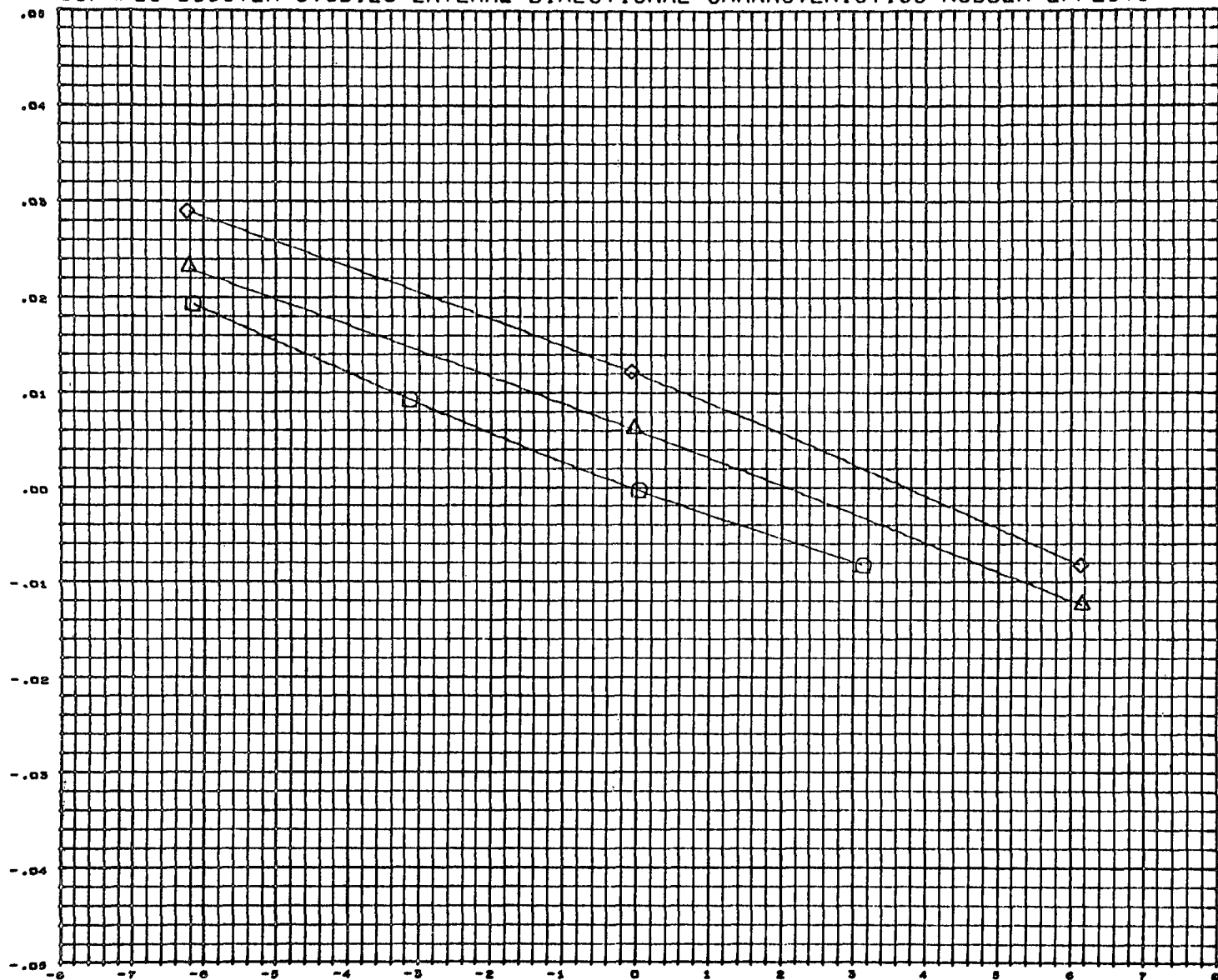


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(RN3004)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.440	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3040)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.469	-5.000	0.000	0.000	LREF	3.4530 FEET
(RN3052)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.506	-10.000	0.000	0.000	SREF	3.4530 FEET
						YMRP	2.8050 FEET
						ZMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 1.125

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS

YAWING MOMENT COEFFICIENT, CYN (BODY AXIS)



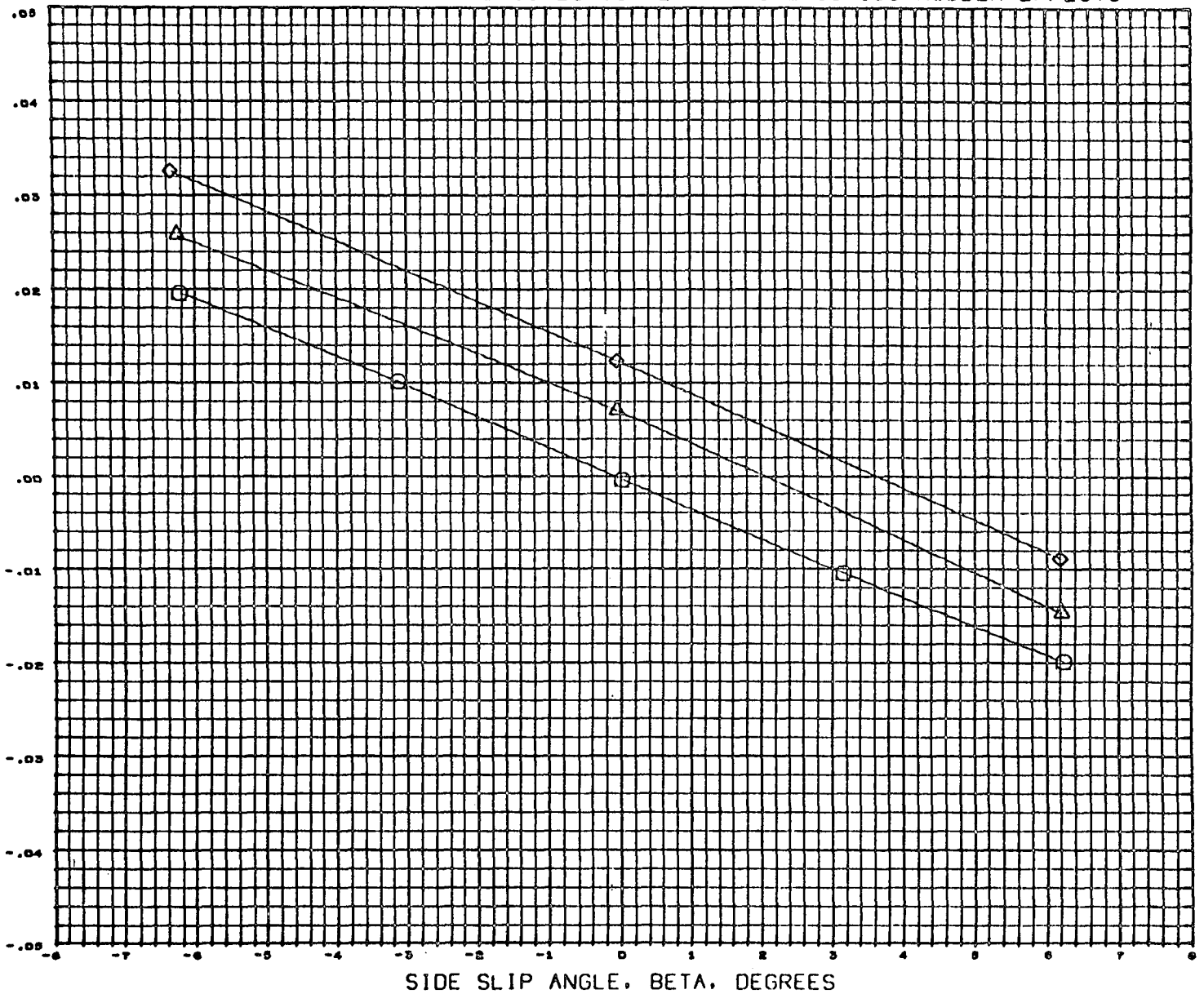
SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(RN3004)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.440	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3048)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.469	-5.000	0.000	0.000	LREF	3.4530 FEET
(RN3092)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.508	-10.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.702

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS

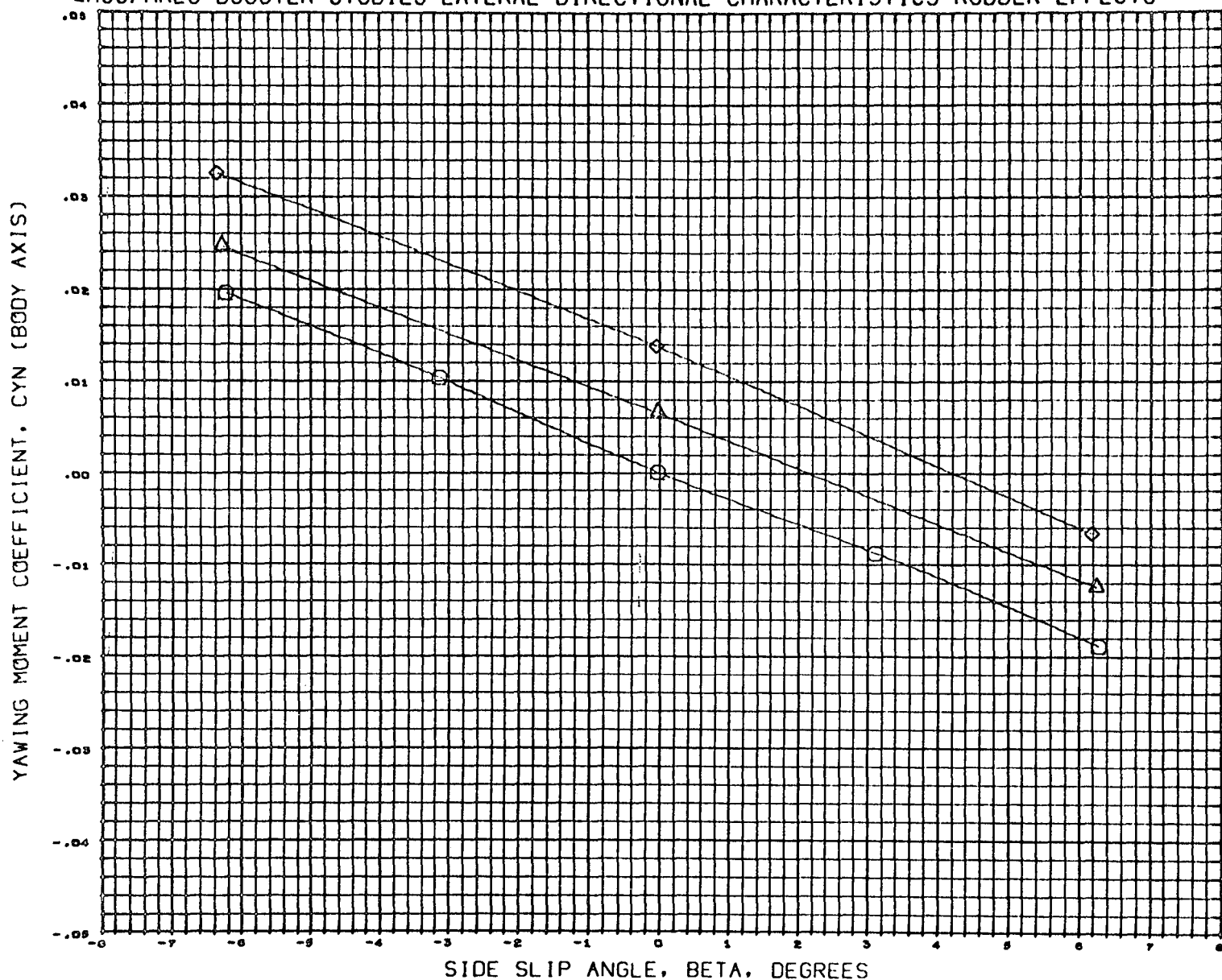
YAWING MOMENT COEFFICIENT, CYN (BODY AXIS)



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(RNS004)	N8RDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.440	0.000	0.000	0.000	BREF	1.3850 SQ.FT.
(RNS048)	N8RDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.469	-5.000	0.000	0.000	LREF	3.4530 FEET
(RNS052)	N8RDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.508	-10.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.800

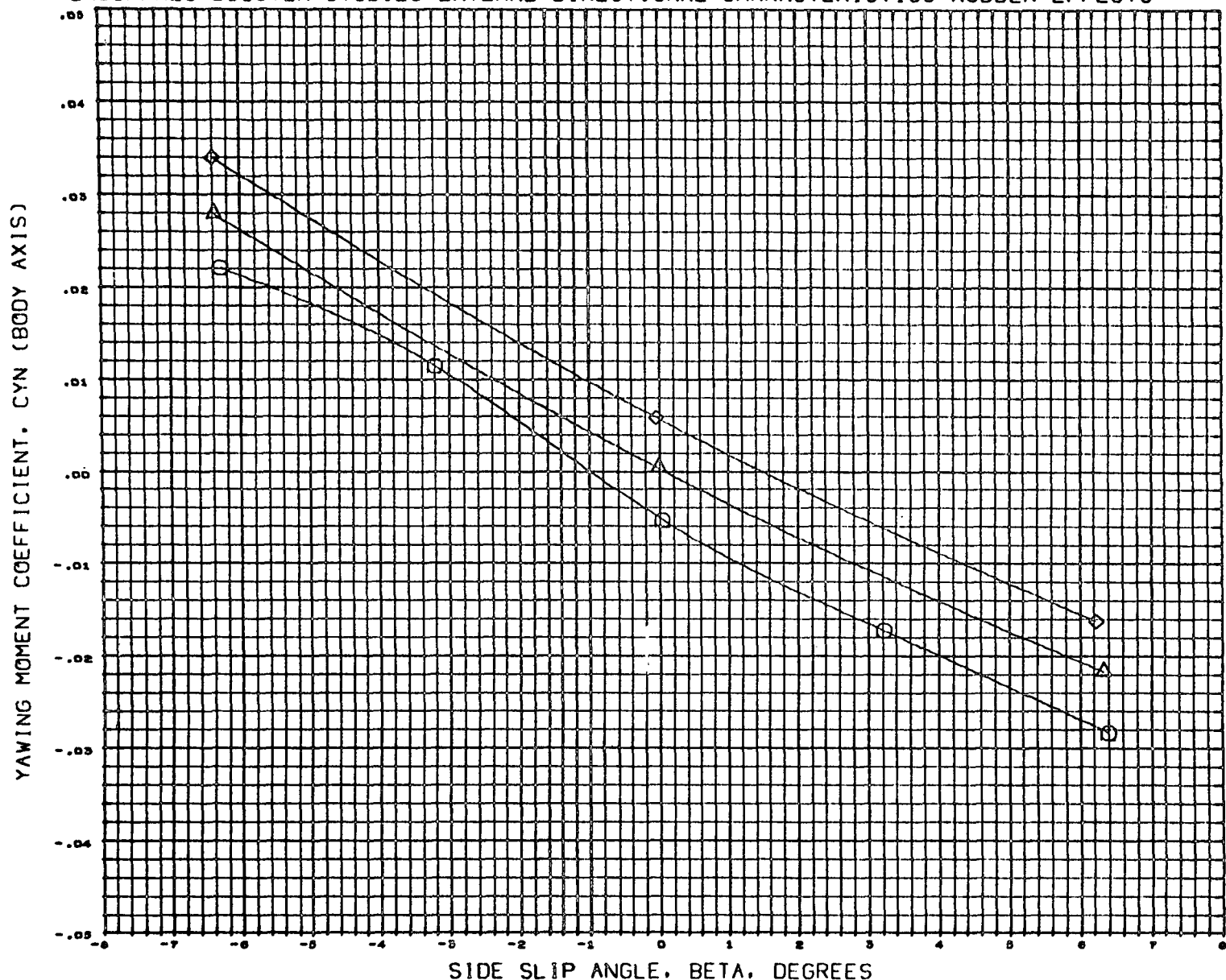
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(RN3004)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.440	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3040)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.469	-5.000	0.000	0.000	LREF	3.4530 FEET
(RN3052)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.508	-10.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.903

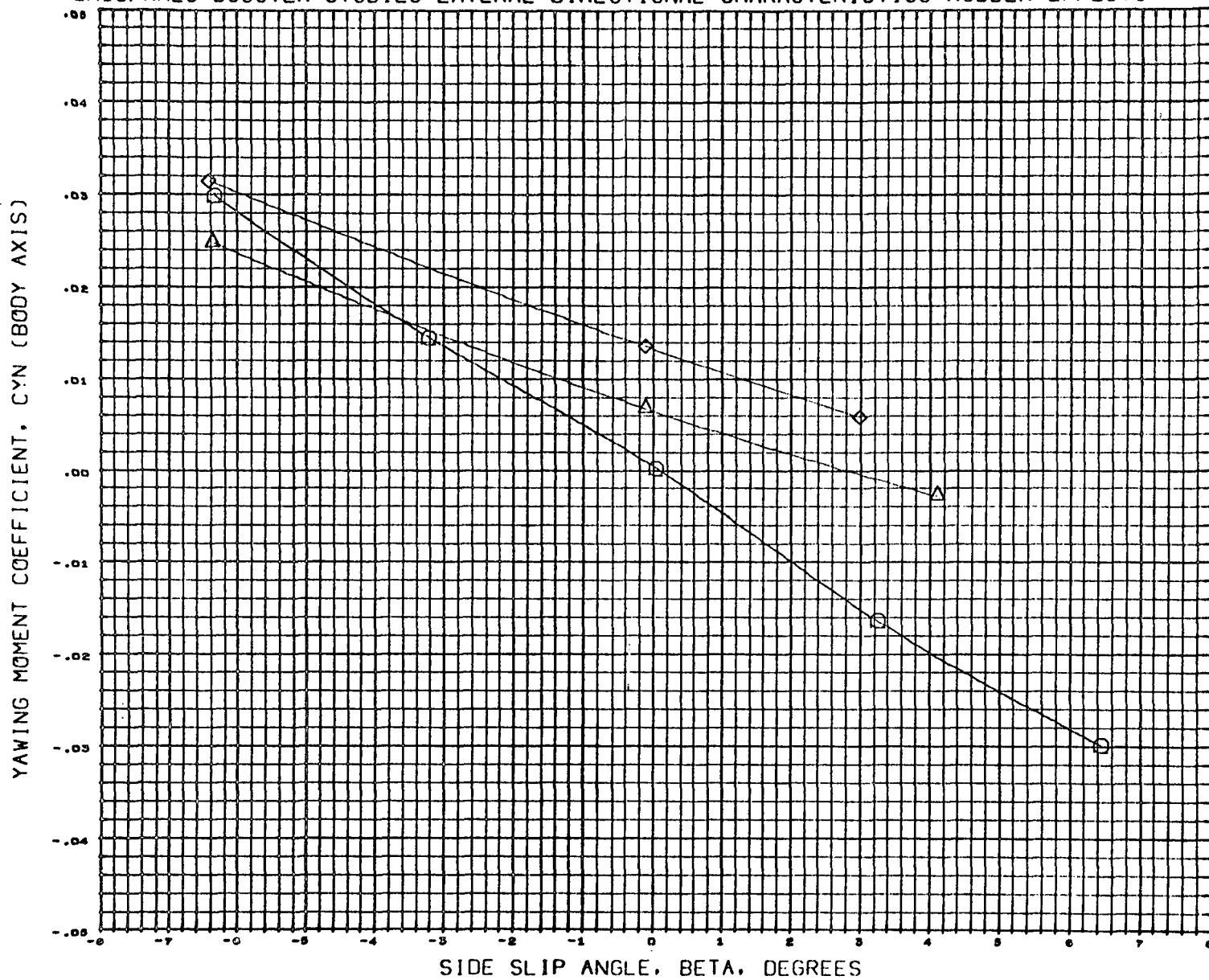
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(RN3004)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.440	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(RN3046)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.469	-5.000	0.000	0.000	LREF	3.4530 FEET
(RN3052)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.508	-10.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	0.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0107 FEET
						SCALE	0.0150 SCALE

MACH 1.001

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS

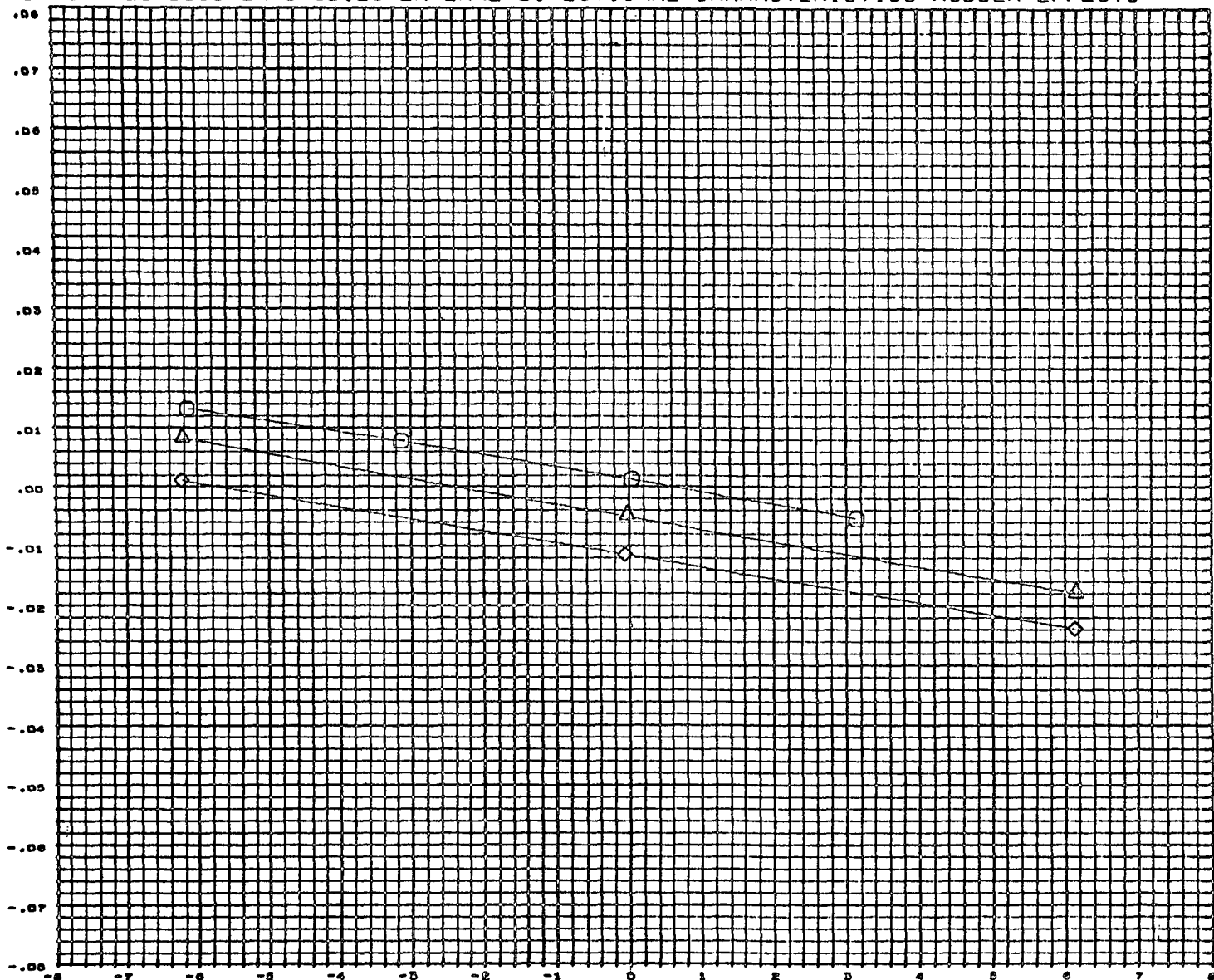


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(RN3004)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.440	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3040)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.469	-5.000	0.000	0.000	LREF	3.4530 FEET
(RN3052)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.506	-10.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.3990 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0190 SCALE

MACH 1.125

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)



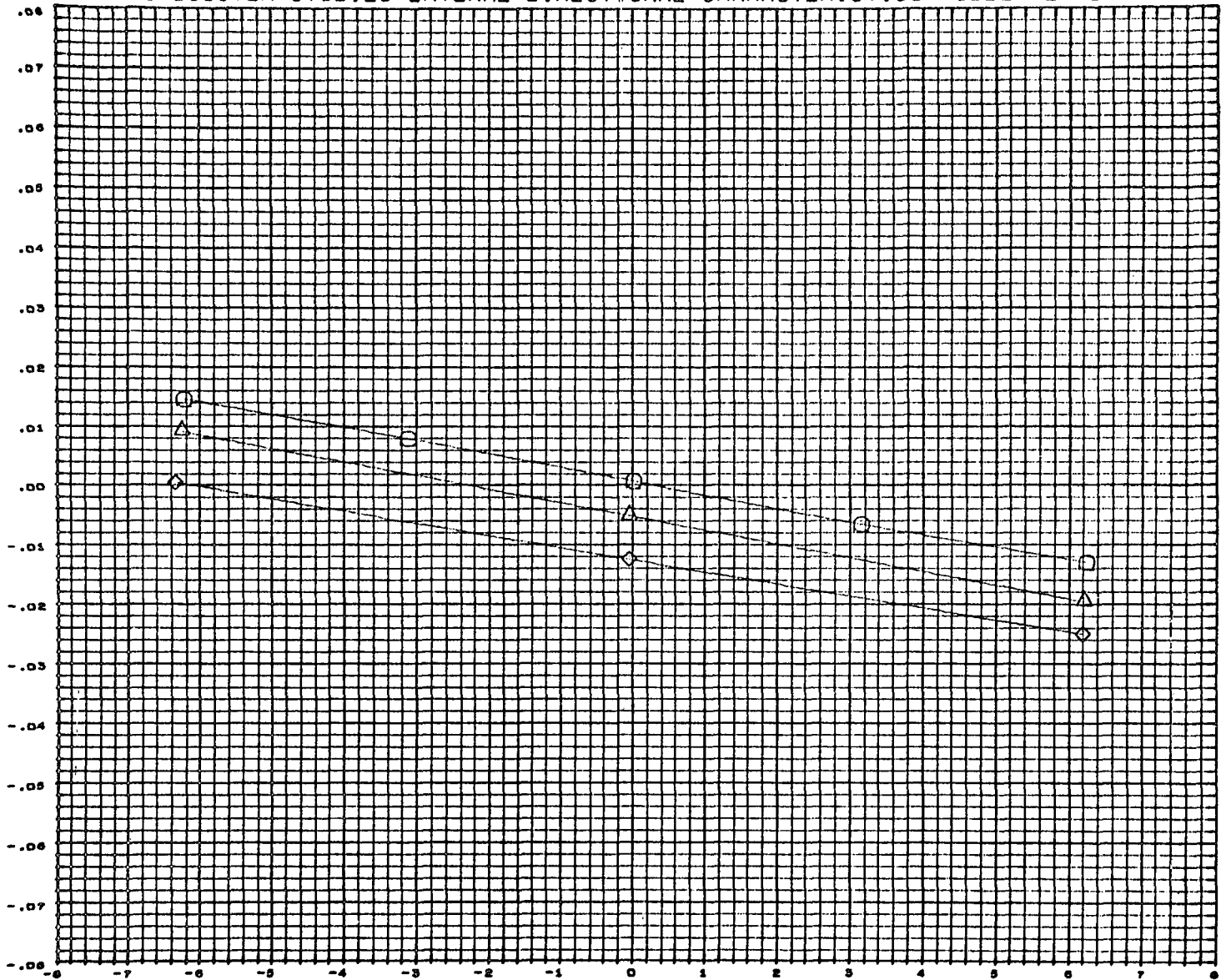
SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(RN3004)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.440	0.000	0.000	0.000	GRF	1.3550 SQ.FT.
(RN3040)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.469	-5.000	0.000	0.000	LRF	3.4530 FEET
(RN3052)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.508	-10.000	0.000	0.000	BRF	3.4530 FEET
						XMRP	2.5050 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.702

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)



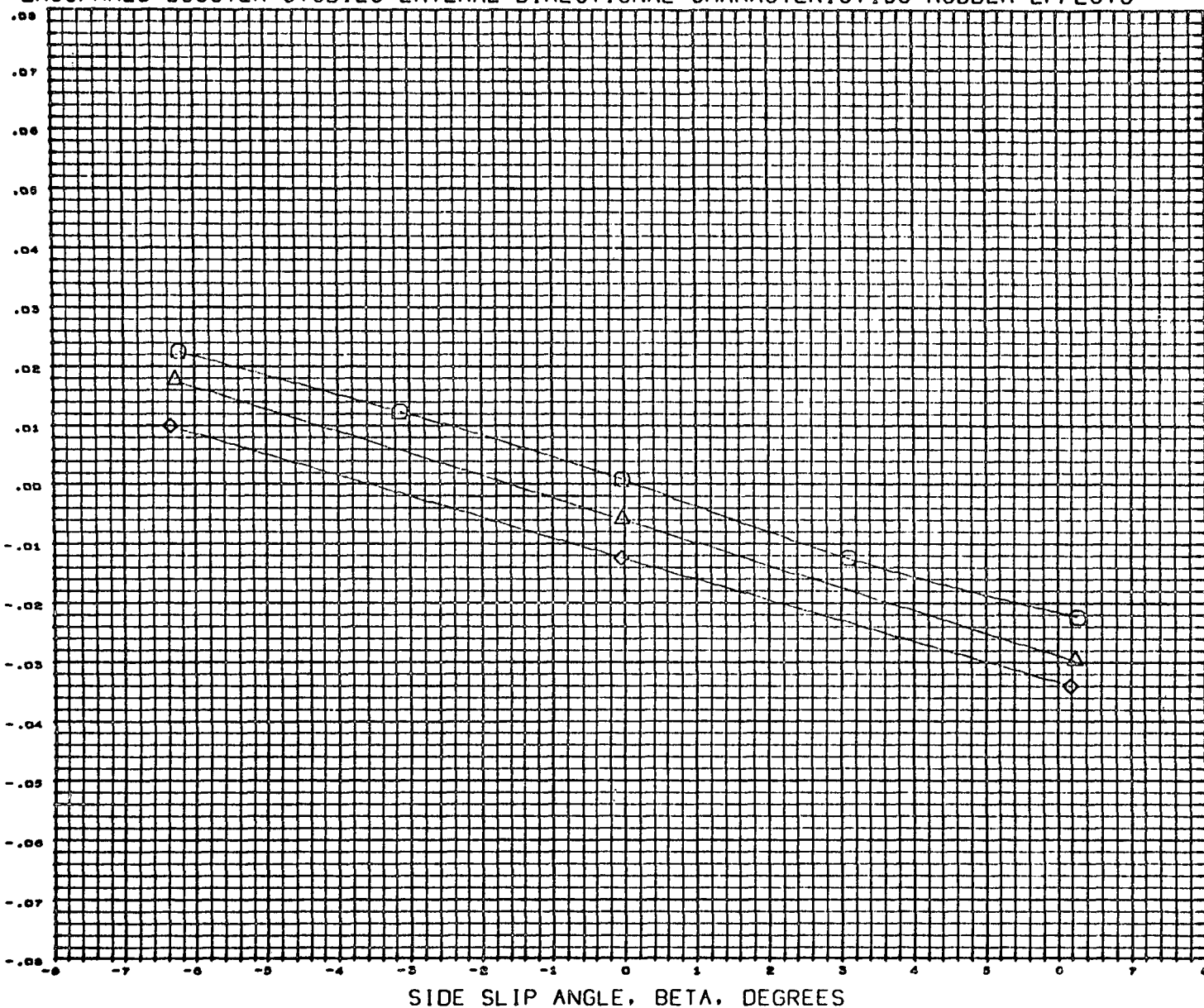
SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(RN3004)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.440	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3040)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.469	-5.000	0.000	0.000	LREF	3.4530 FEET
(RN3052)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.900	-10.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0190 SCALE

PACH 0.600

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)

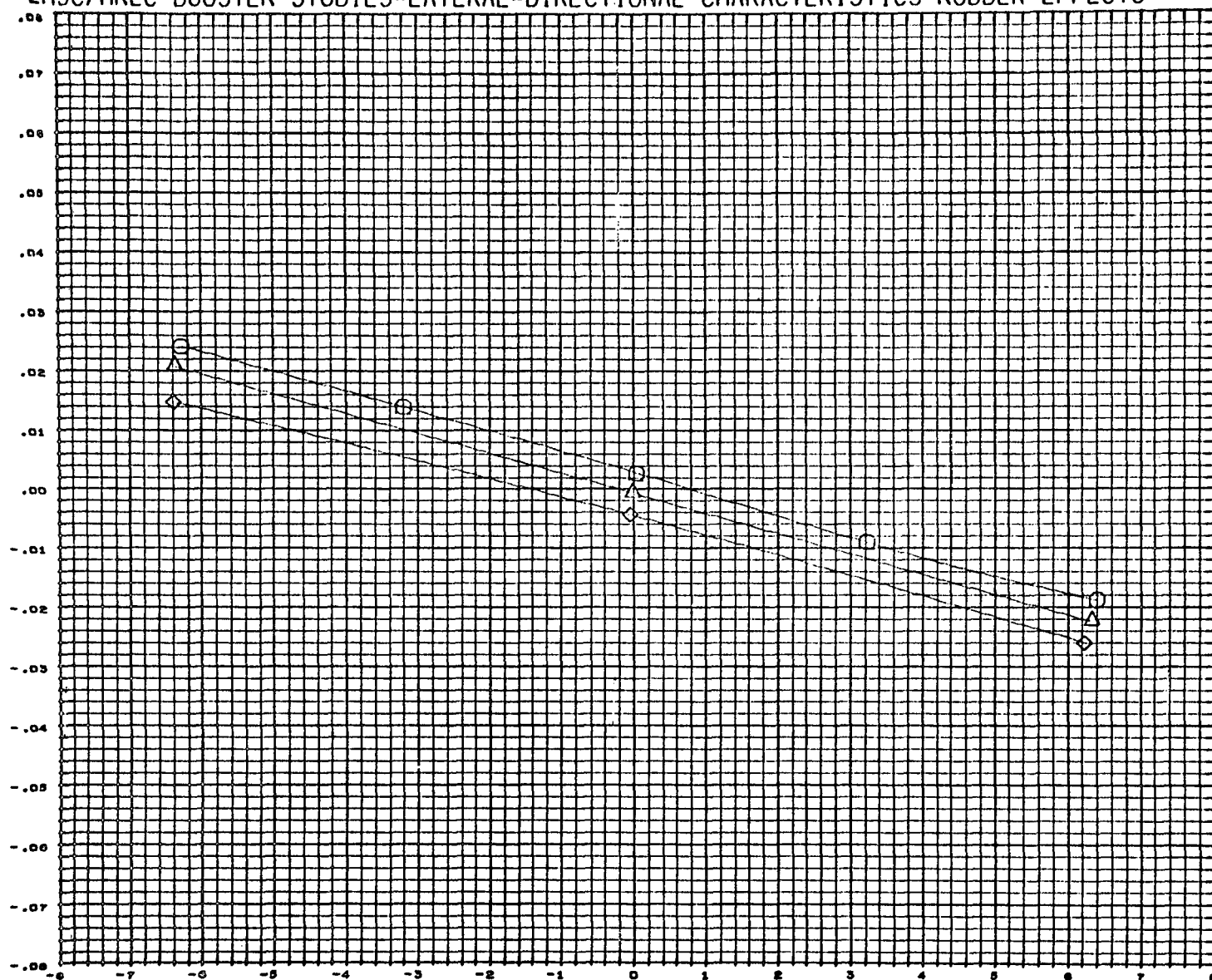


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(RN3004)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.440	0.000	0.000	0.000	SREF	1.3550 89. FT.
(RN3046)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.469	-5.000	0.000	0.000	LREF	3.4530 FEET
(RN3052)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.508	-10.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.903

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)



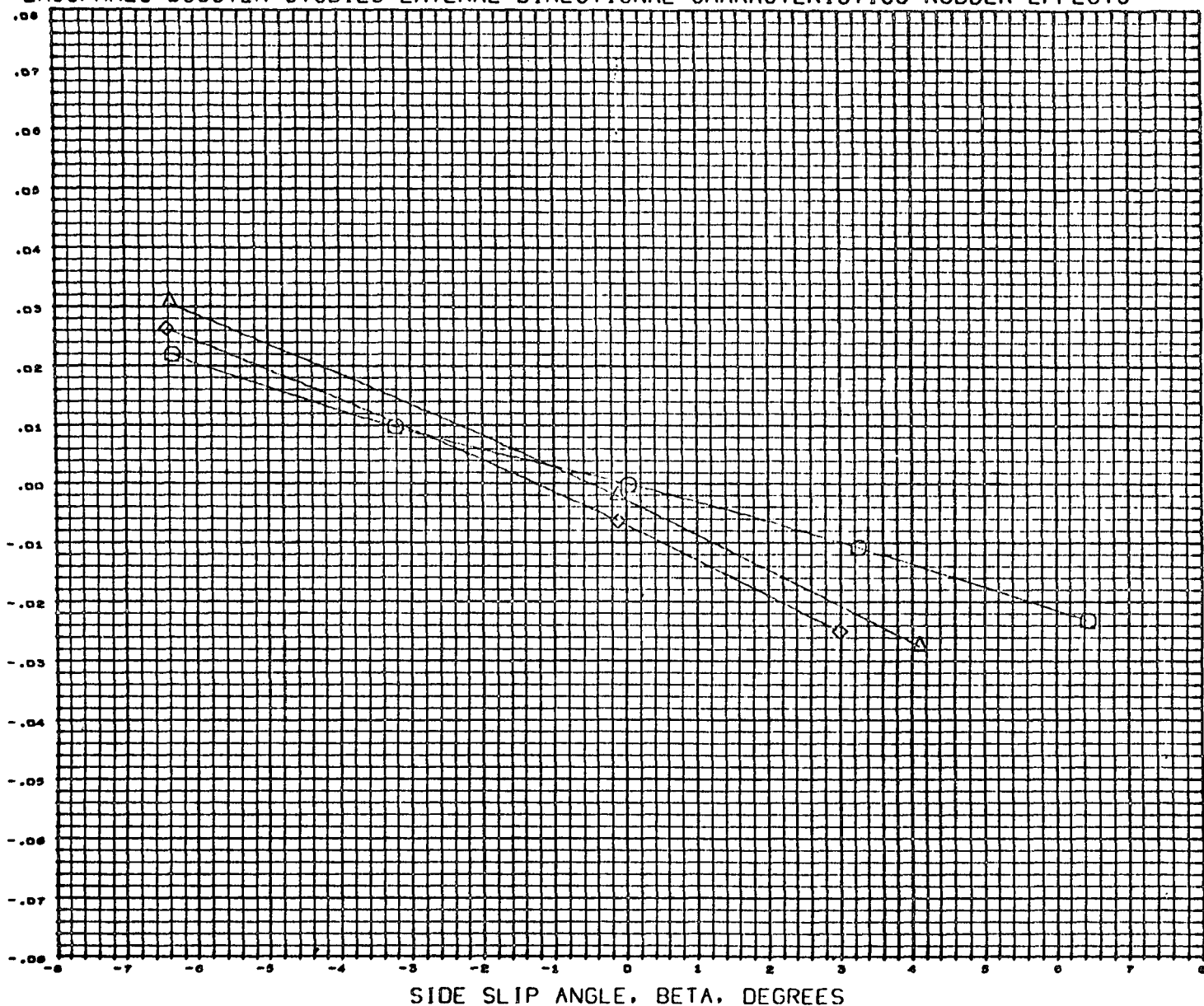
SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(RN3004)	NBRDC-3210, M8FC/LMSC BOOSTER B1C2F2W1V1	15.440	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(RN3046)	NBRDC-3210, M8FC/LMSC BOOSTER B1C2F2W1V1	15.469	-5.000	0.000	0.000	LREF	3.4530 FEET
(RN3052)	NBRDC-3210, M8FC/LMSC BOOSTER B1C2F2W1V1	15.508	-10.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 1.001

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-RUDDER EFFECTS

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)

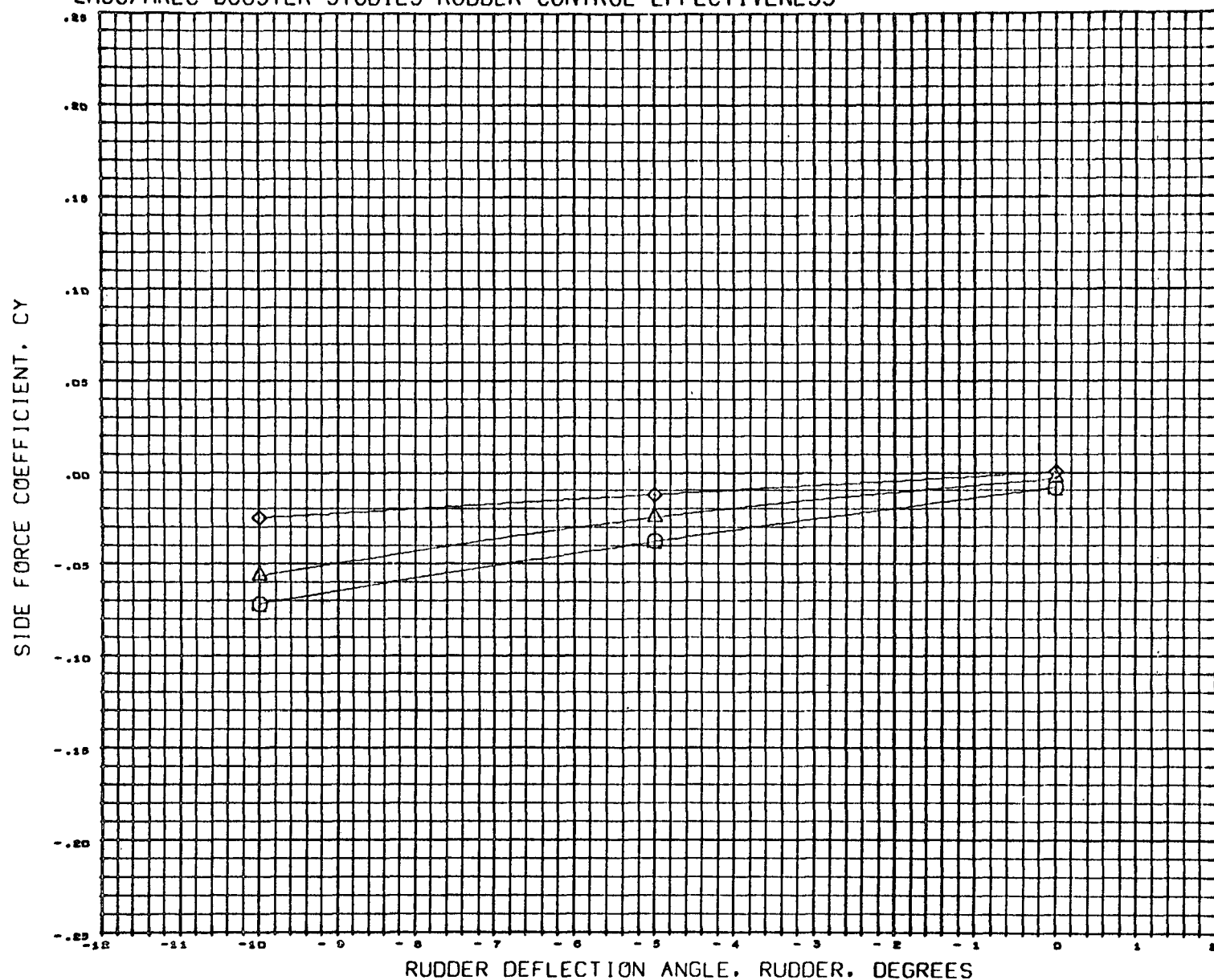


SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(RN3004)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.440	0.000	0.000	0.000	SREF	1.3950 SQ.FT.
(RN3048)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.469	-5.000	0.000	0.000	LREF	3.4530 FEET
(RN3092)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.508	-10.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.5050 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

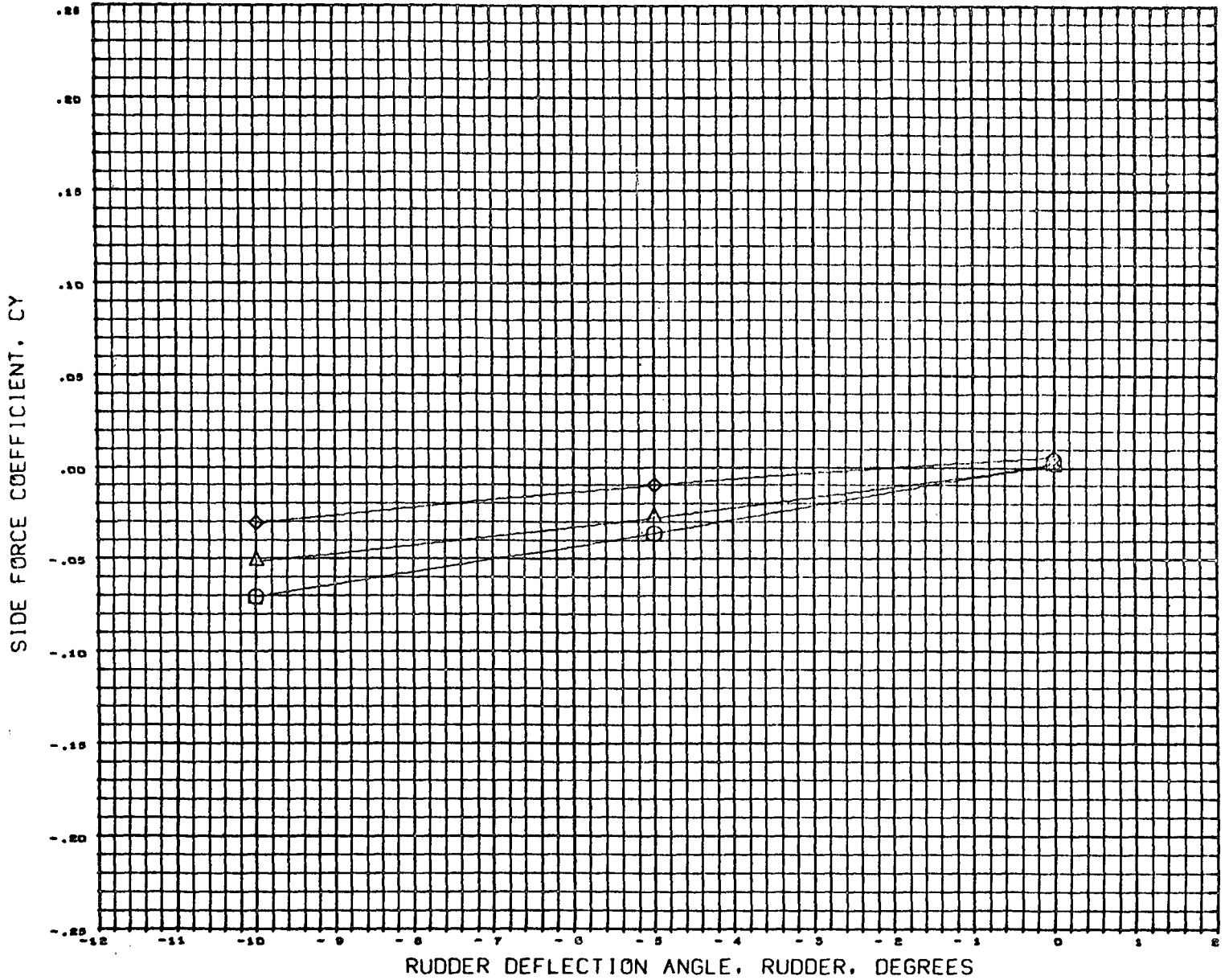
MACH 1.125

LMSC/HREC BOOSTER STUDIES-RUDDER CONTROL EFFECTIVENESS



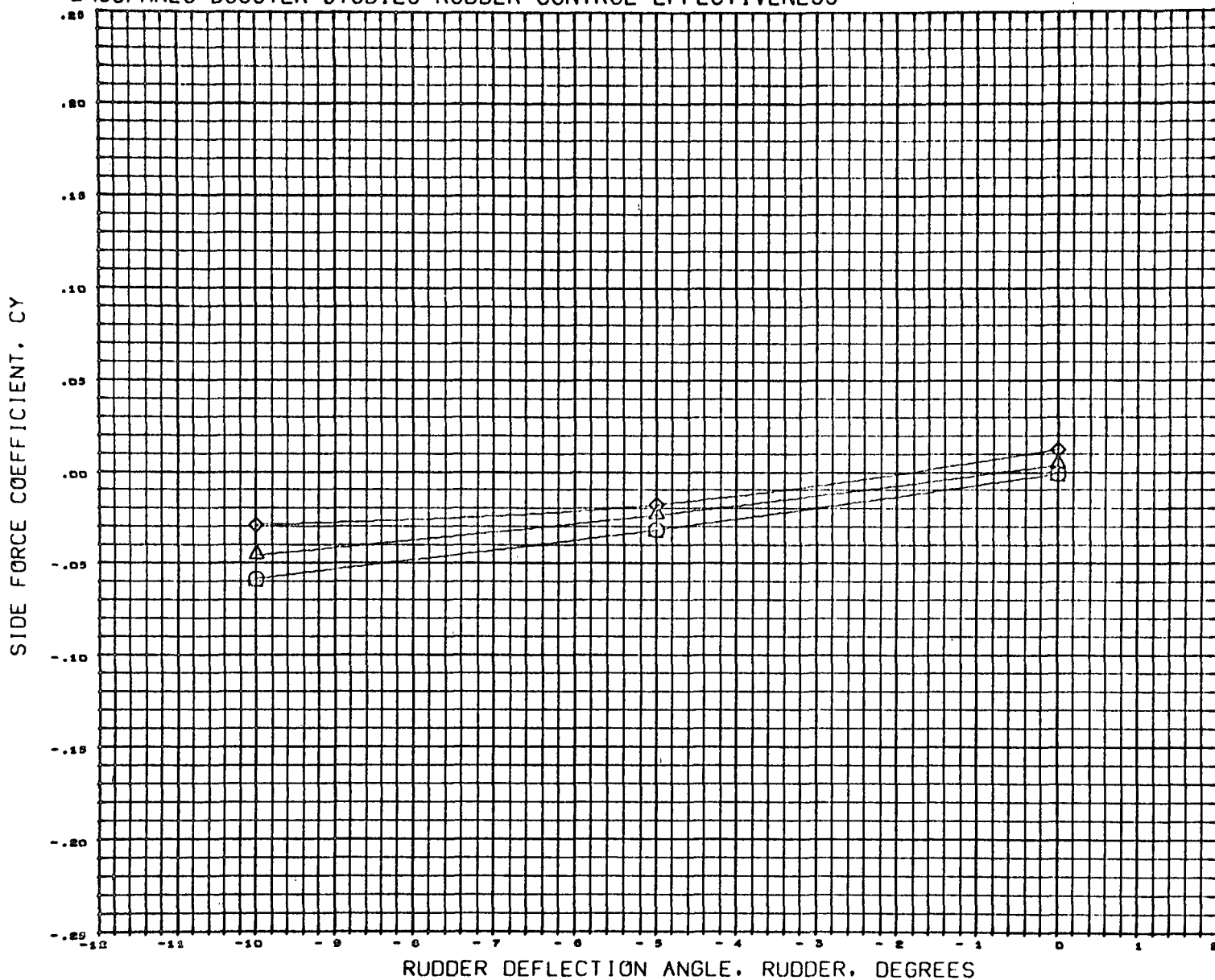
SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	0.000	<u>MACH</u>	0.700	<u>BETA</u>	0.000	BREF	1.3550	80. FT.
△	0.150	<u>INCIDC</u>	3.000	<u>INCIDW</u>	0.000	LREF	3.4530	FEET
◇	15.500	<u>MSFLOW</u>	0.000	<u>AILRON</u>	0.000	BREF	3.4530	FEET
		<u>CANARD</u>	0.000	<u>ELEVTR</u>	0.000	XMRP	2.9950	FEET
		<u>WNGPOS</u>	1.000	<u>CNDPOS</u>	1.000	YMRP	0.0000	FEET
		DATA HIST. CODE	1M			ZMRP	0.0167	FEET
						SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-RUDDER CONTROL EFFECTIVENESS



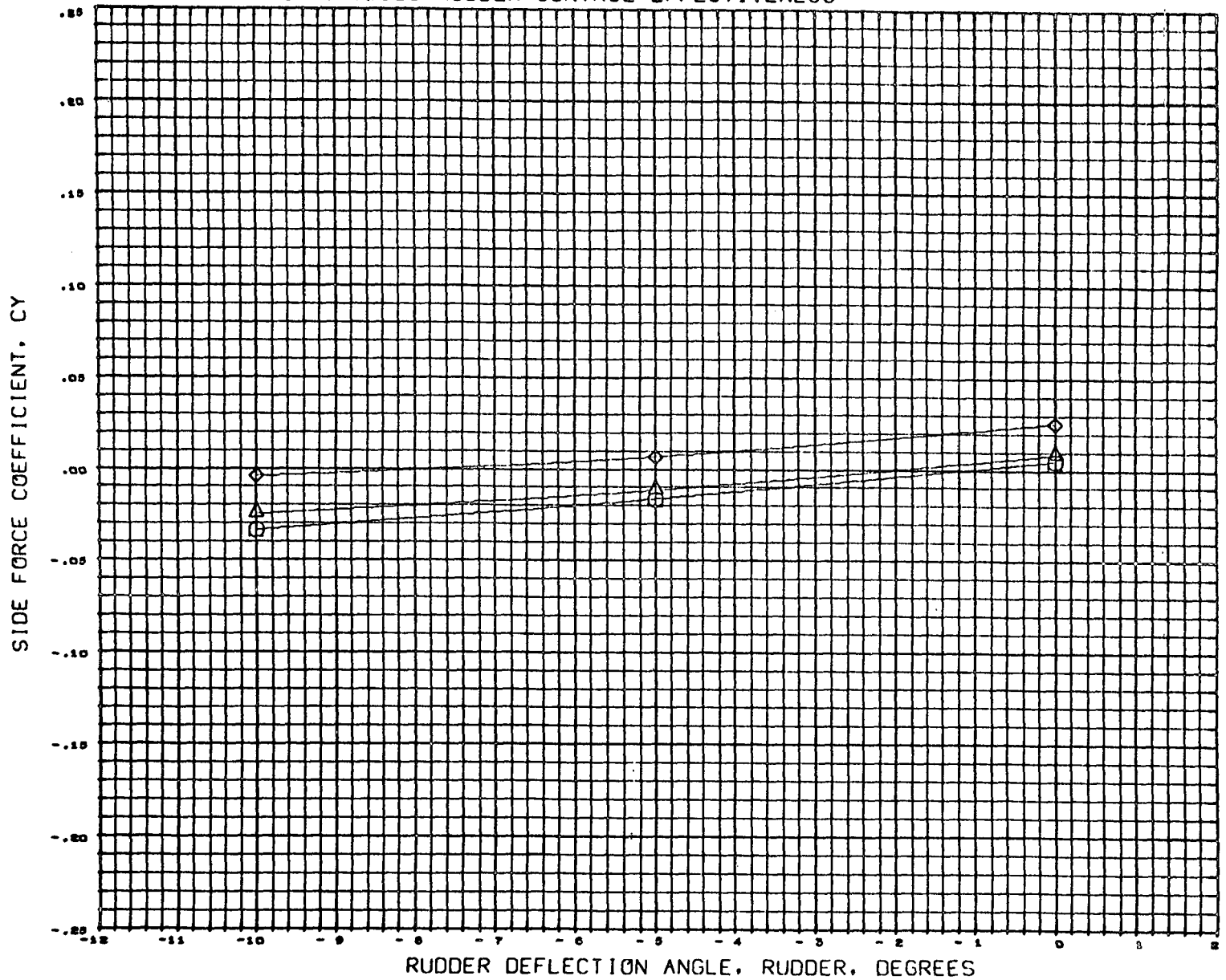
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○	0.000	MACH	0.000	BETA	0.000	SRF	1.3550	SQ. FT.
△	0.150	INCIDC	3.000	INCIDW	0.000	LREF	3.4550	FEET
◇	15.500	MSFLOW	0.000	AILRON	0.000	BREF	3.4550	FEET
		CANARD	0.000	ELEVTR	0.000	XMRP	2.5050	FEET
		WNGPOS	1.000	CNDPOS	1.000	YMRP	0.0000	FEET
		DATA HIST. CODE	1H			ZMRP	0.0167	FEET
						SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-RUDDER CONTROL EFFECTIVENESS



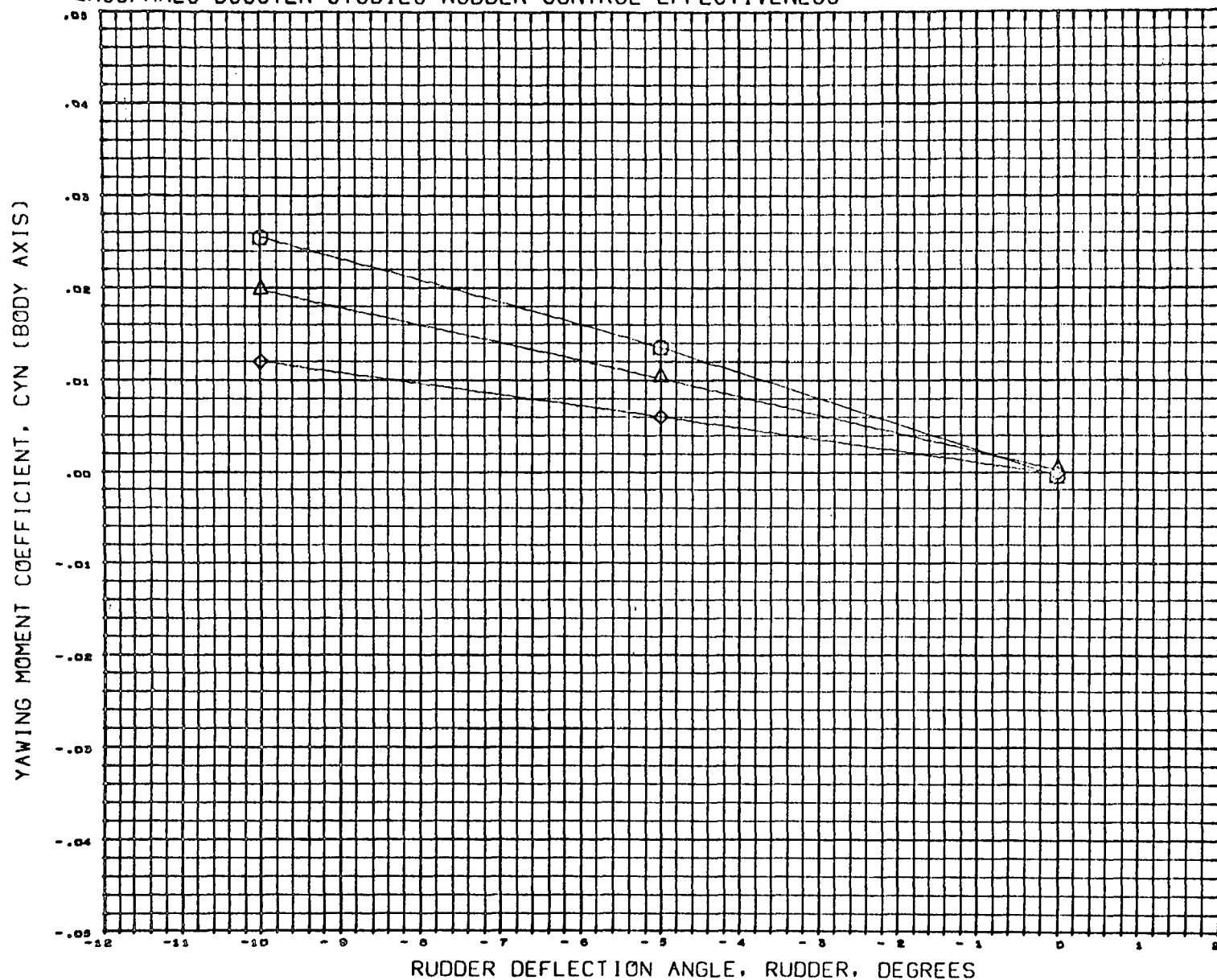
SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	0.000	<u>MACH</u>	0.900	<u>BETA</u>	0.000	SREF	1.3550	80.FT.
△	0.150	<u>INCIDC</u>	3.000	<u>INCIDW</u>	0.000	LREF	3.4530	FEET
◇	0.500	<u>MSFLOW</u>	0.000	<u>AILRON</u>	0.000	BREF	3.4530	FEET
		<u>CANARD</u>	0.000	<u>ELEVTR</u>	0.000	XMRP	2.5950	FEET
		<u>WNGPOS</u>	1.000	<u>CNDPOS</u>	1.000	YMRP	0.0000	FEET
		<u>DATA HIST. CODE</u>	1M			ZMRP	0.0167	FEET
						SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-RUDDER CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
◇	0.000	MACH	1.000	BETA	0.000	BREF	1.3550	80.FT.
△	0.150	INCIDC	3.000	INCIDW	0.000	LREF	3.4530	FEET
○	15.500	MSFLOW	0.000	AILRON	0.000	BREF	3.4530	FEET
		CANARD	0.000	ELEVTR	0.000	XMRP	2.5950	FEET
		WINGPOS	1.000	CNDPOS	1.000	YMRP	0.0000	FEET
						ZMRP	0.0167	FEET
						SCALE	0.0100	SCALE
		DATA HIST. CODE	IM					

LMSC/HREC BOOSTER STUDIES-RUDDER CONTROL EFFECTIVENESS



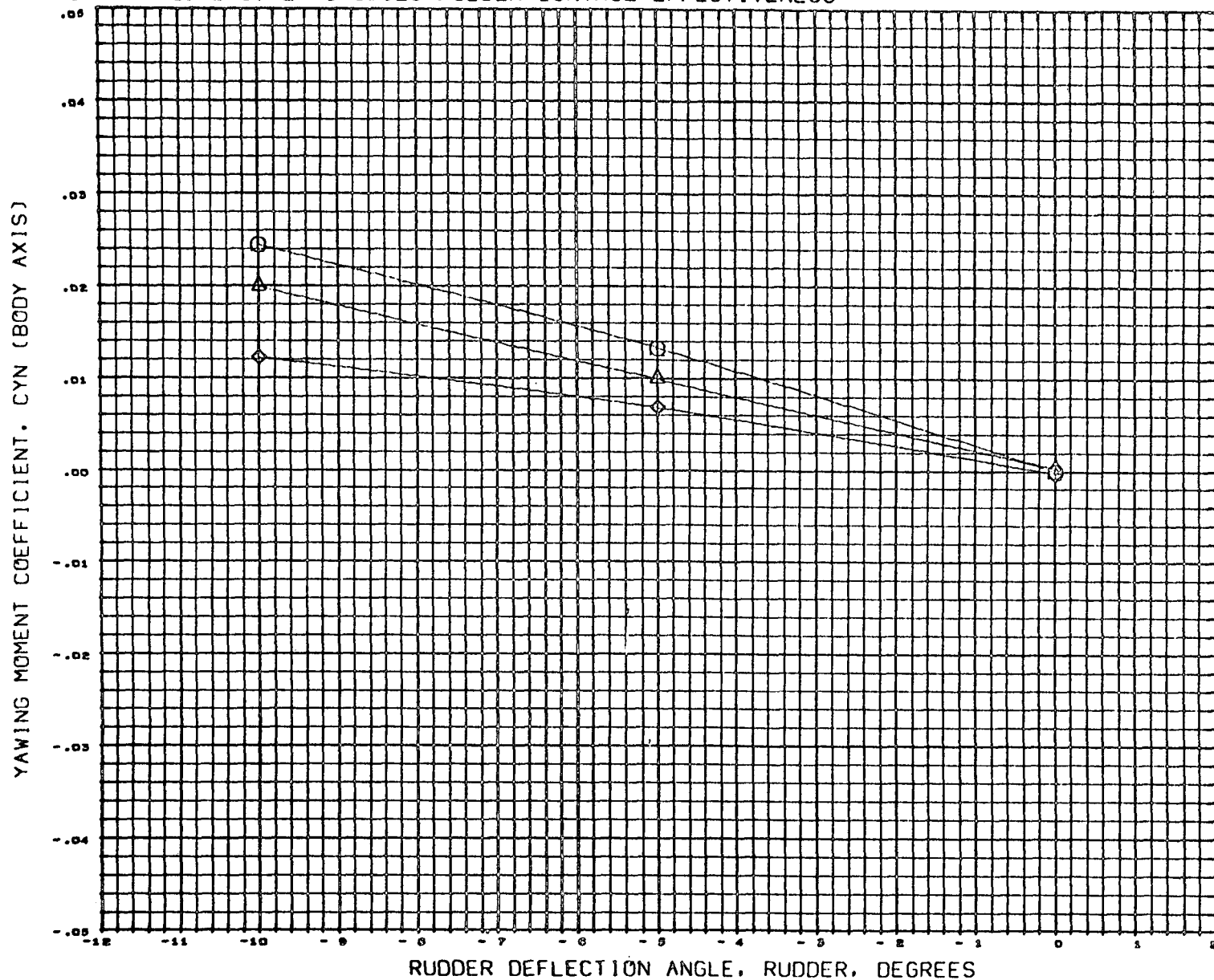
SYMBOL	PARAMETRIC VALUES						REFERENCE INFORMATION		
	ALPHA	MACH	BETA	INCIDC	INCIDW	AILRON	SREF	1.3550	80. FT.
○	0.000	0.700	0.000	0.000	0.000	0.000	LREF	3.4530	FEET
△	0.150	3.000	0.000	0.000	0.000	0.000	BREF	3.4530	FEET
◇	0.300	0.000	0.000	0.000	0.000	0.000	XMRP	2.5050	FEET
		CANARD	ELEVTR	0.000	0.000	0.000	YMRP	0.0000	FEET
		WINGPOS	CNDPOS	1.000	1.000		ZMRP	0.0107	FEET
		DATA HIST. CODE	IM				SCALE	0.0150	SCALE

NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1

(GN3050) 19 JAN 72

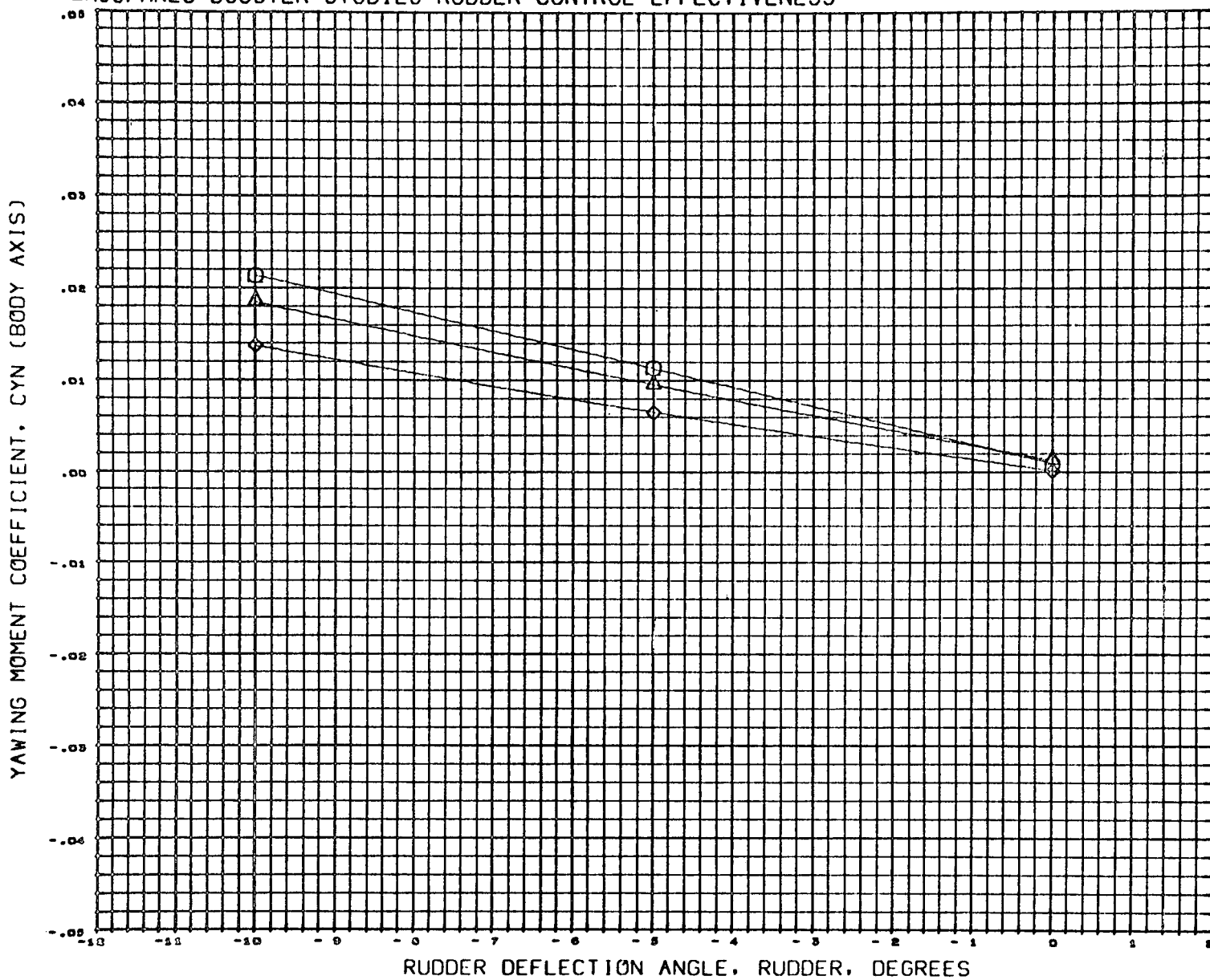
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LMSC/HREC BOOSTER STUDIES-RUDDER CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	0.000	<u>MACH</u>	0.000	<u>BETA</u>	0.000	QREF	1.3550	SQ.FT.
△	0.190	<u>INCIDC</u>	3.000	<u>INCIDW</u>	0.000	LREF	3.4530	FEET
◇	15.900	<u>MSFLOW</u>	0.000	<u>AILRON</u>	0.000	QREF	3.4530	FEET
		<u>CANARD</u>	0.000	<u>ELEVTR</u>	0.000	XMRP	2.9950	FEET
		<u>WNGPOS</u>	1.000	<u>CNDPOS</u>	1.000	YMRP	0.0000	FEET
		DATA HIST. CODE 1M				ZMRP	0.0167	FEET
						SCALE	0.0190	SCALE

LMSC/HREC BOOSTER STUDIES-RUDDER CONTROL EFFECTIVENESS

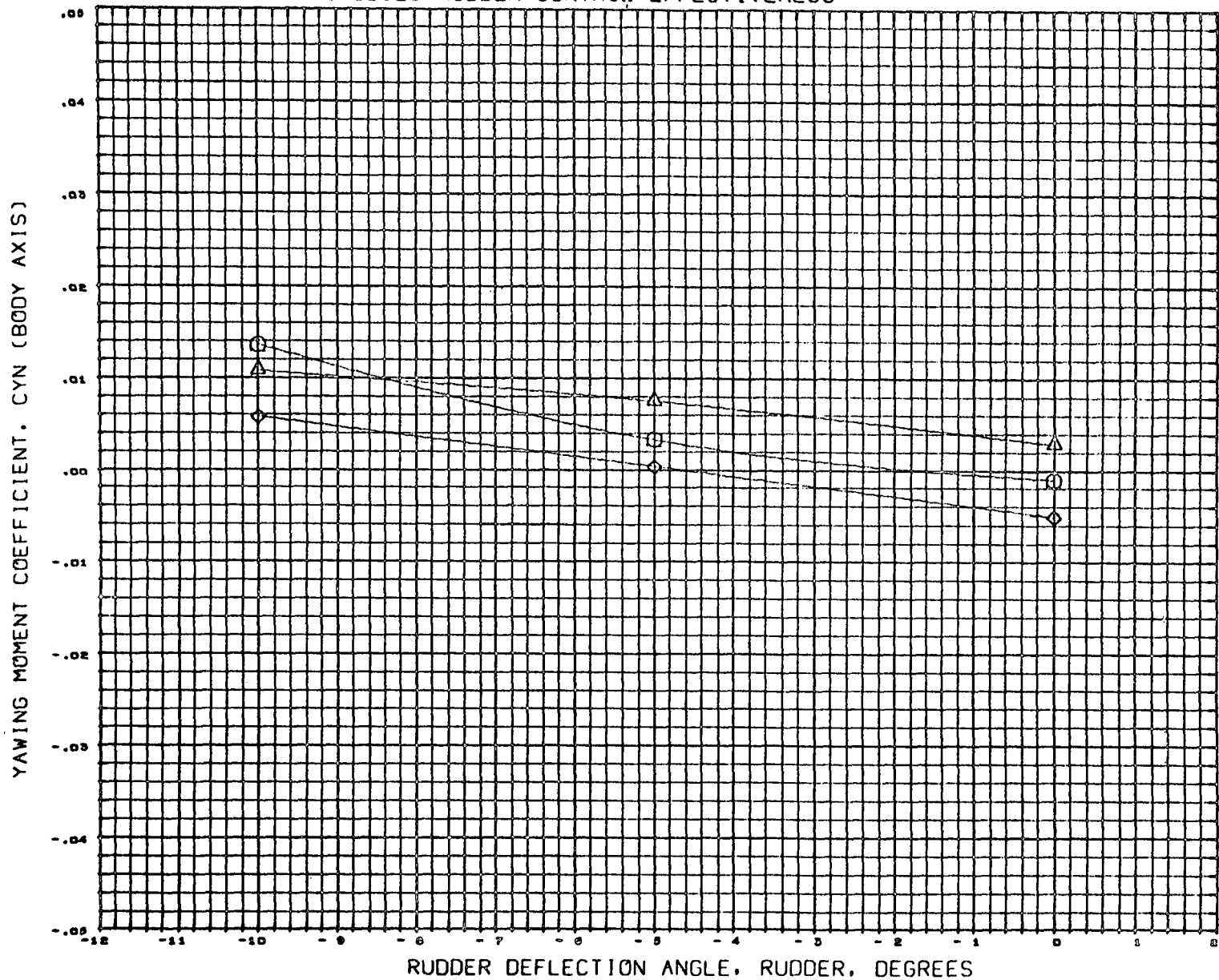


SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	0.000	MACH	0.900	BETA	0.000	SREF	1.3550	80. FT.
△	0.190	INCIDC	3.000	INCIDW	0.000	LREF	3.4530	FEET
◇	19.500	MSFLOW	0.000	AILRON	0.000	BREF	3.4530	FEET
		CANARD	0.000	ELEVTR	0.000	XMRP	2.8950	FEET
		WINGPOS	1.000	CNDPOS	1.000	YMRP	0.0000	FEET
		DATA MIST. CODE	1H			ZMRP	0.0167	FEET
						SCALE	0.0150	SCALE

NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1

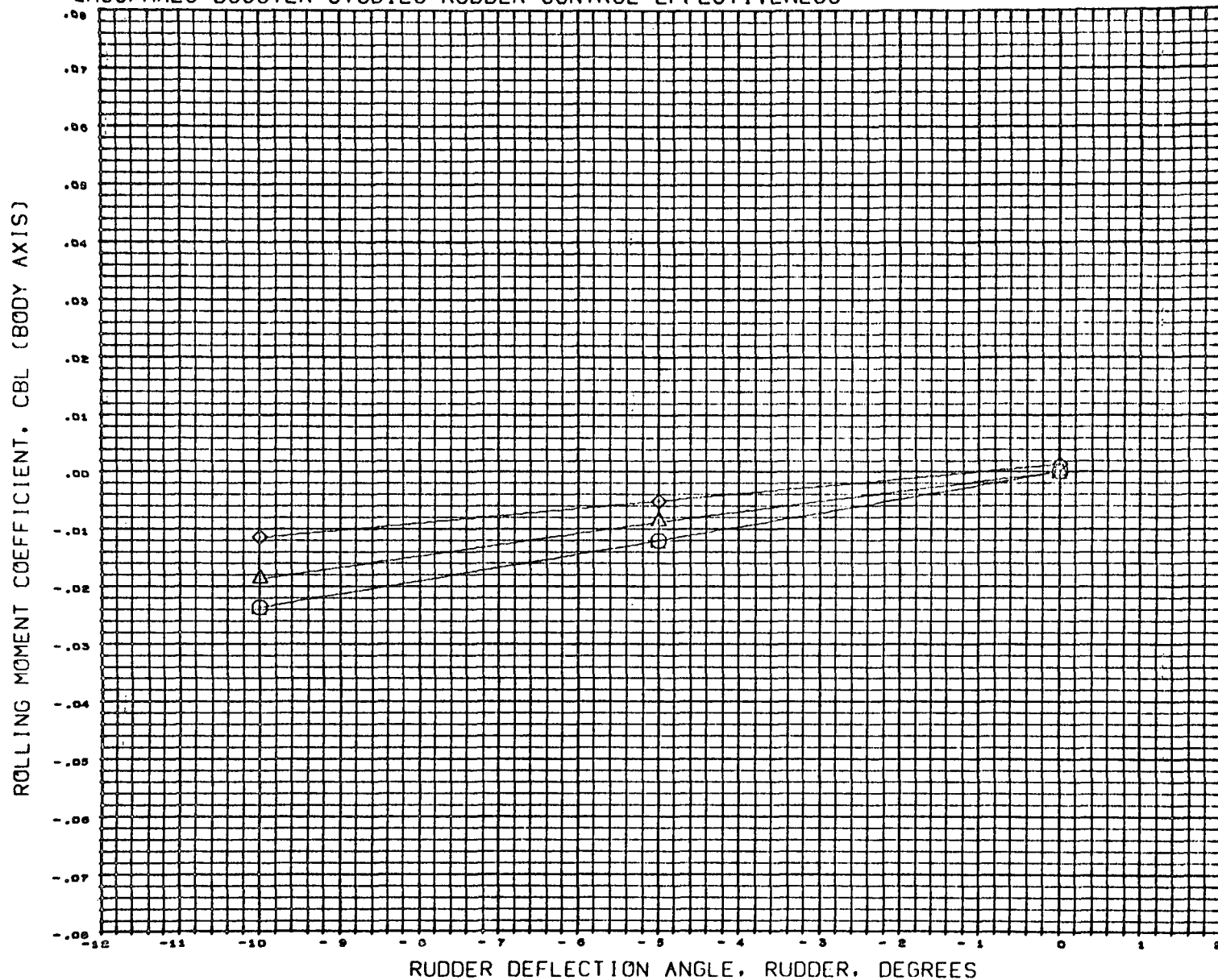
(GN3050) 19 JAN 72 PAGE 249

LMSC/HREC BOOSTER STUDIES-RUDDER CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	0.000	<u>MACH</u>	1.000	<u>BETA</u>	0.000	SREF	1.3550	CG.FT.
△	0.150	<u>INCIDC</u>	0.000	<u>INCIDW</u>	0.000	LREF	3.4930	FEET
◇	19.500	<u>MSFLOW</u>	0.000	<u>AILRON</u>	0.000	BREF	3.4930	FEET
		<u>CANARD</u>	0.000	<u>ELEVTR</u>	0.000	XMRP	2.3950	FEET
		<u>WNGPOS</u>	1.000	<u>CNDPOS</u>	1.000	YMRP	0.0000	FEET
		DATA HIST. CODE	1M			ZMRP	0.0167	FEET
						SCALE	0.0150	SCALE

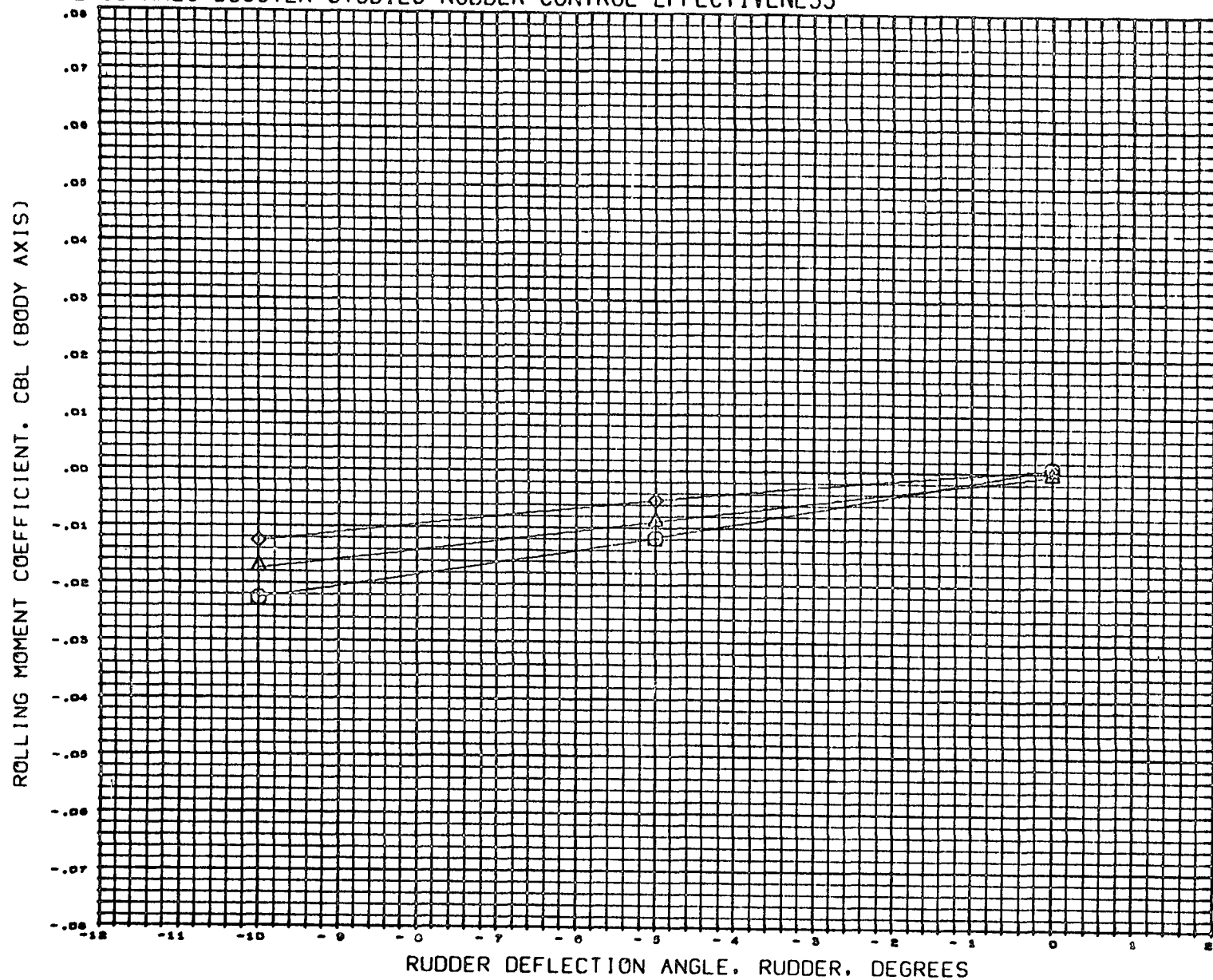
LMSC/HREC BOOSTER STUDIES-RUDDER CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES			
○	0.000	MACH	0.700	BETA	0.000
△	0.190	INCIDC	3.000	INCIDW	0.000
◇	15.900	MSFLOW	0.000	AILRON	0.000
		CANARD	0.000	ELEVTR	0.000
		WINGPOS	1.000	CNDPOS	1.000
		DATA HIST. CODE	1M		

REFERENCE INFORMATION		
SREF	1.3550	SQ.FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0167	FEET
SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-RUDDER CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES
◇	0.000	<u>MACH</u> 0.000 <u>BETA</u> 0.000
△	0.150	<u>INCIDC</u> 3.000 <u>INCIDW</u> 0.000
○	15.500	<u>MSFLOW</u> 0.000 <u>AILRON</u> 0.000
		<u>CANARD</u> 0.000 <u>ELEVTR</u> 0.000
		<u>WNGPOS</u> 1.000 <u>CNDPOS</u> 1.000
		DATA HIST. CODE IN

REFERENCE INFORMATION		
SRFP	1.3550	SQ. FT.
LRFP	3.4530	FEET
BRFP	3.4530	FEET
XRFP	3.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0167	FEET
SCALE	0.0150	SCALE

NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1

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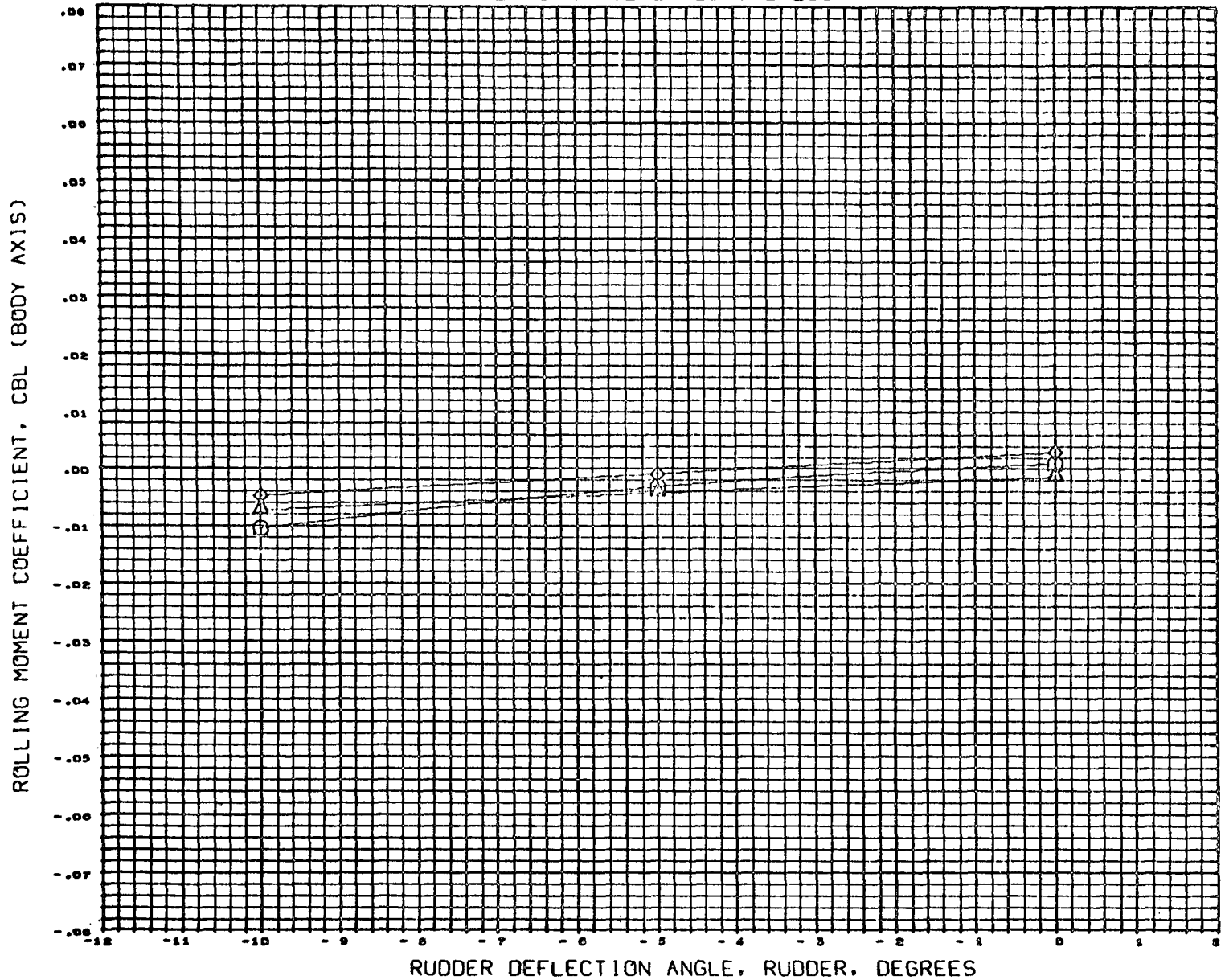
LMSC/HREC BOOSTER STUDIES-RUDDER CONTROL EFFECTIVENESS

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)



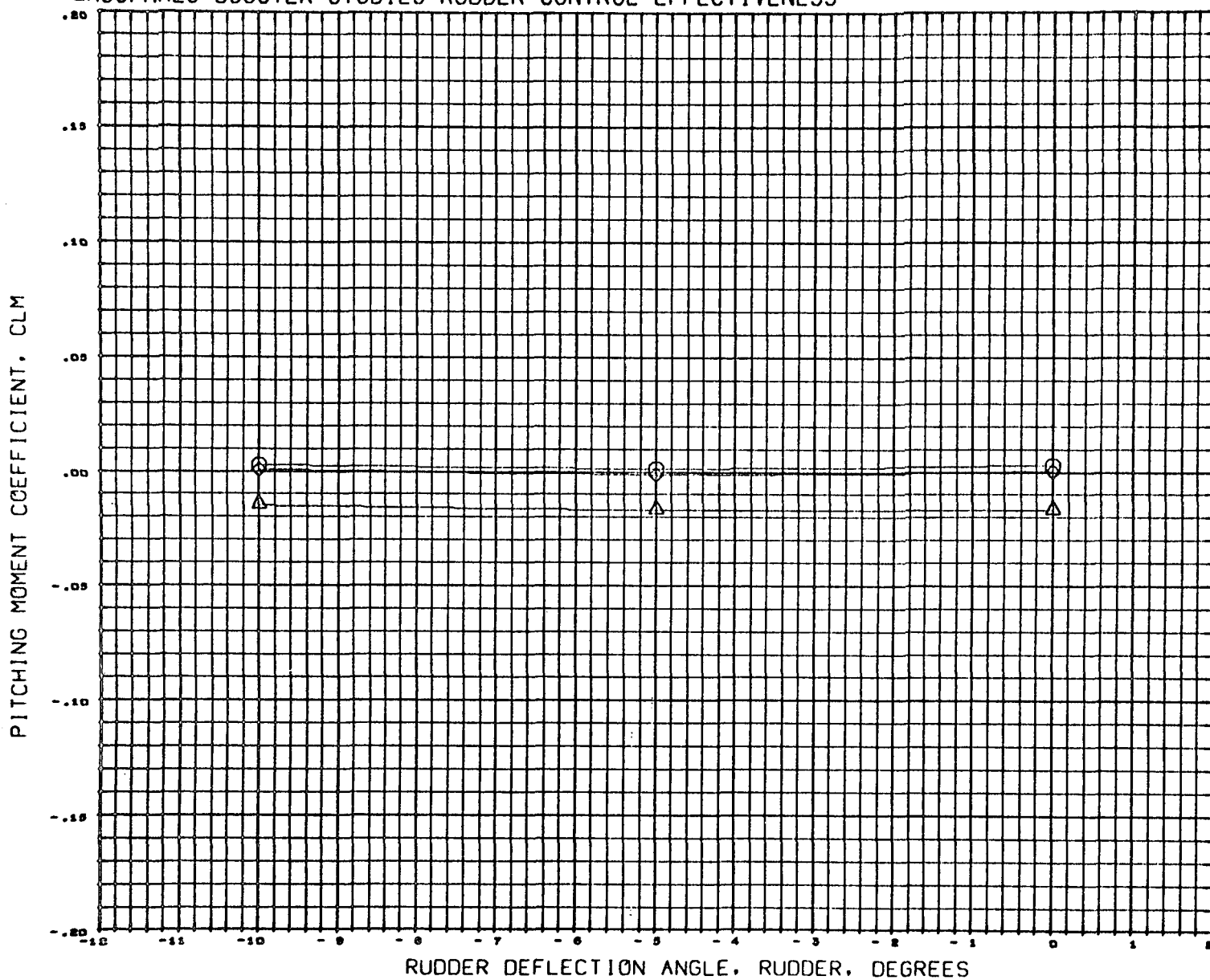
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	ALPHA	MACH	BETA	INCIDW	SRF	SG, FT.
○	0.000	0.000	0.000	0.000	LREF	3.4530 FEET
△	0.190	0.000	0.000	0.000	BREF	3.4530 FEET
◇	15.900	0.000	0.000	0.000	XMRP	2.5950 FEET
		CANARD	ELEVTR	0.000	YMRP	0.0000 FEET
		WNGPOS	CNDPOS	1.000	ZMRP	0.0187 FEET
		DATA MIST. CODE	IM		SCALE	0.0150 SCALE

LMSC/HREC BOOSTER STUDIES-RUDDER CONTROL EFFECTIVENESS



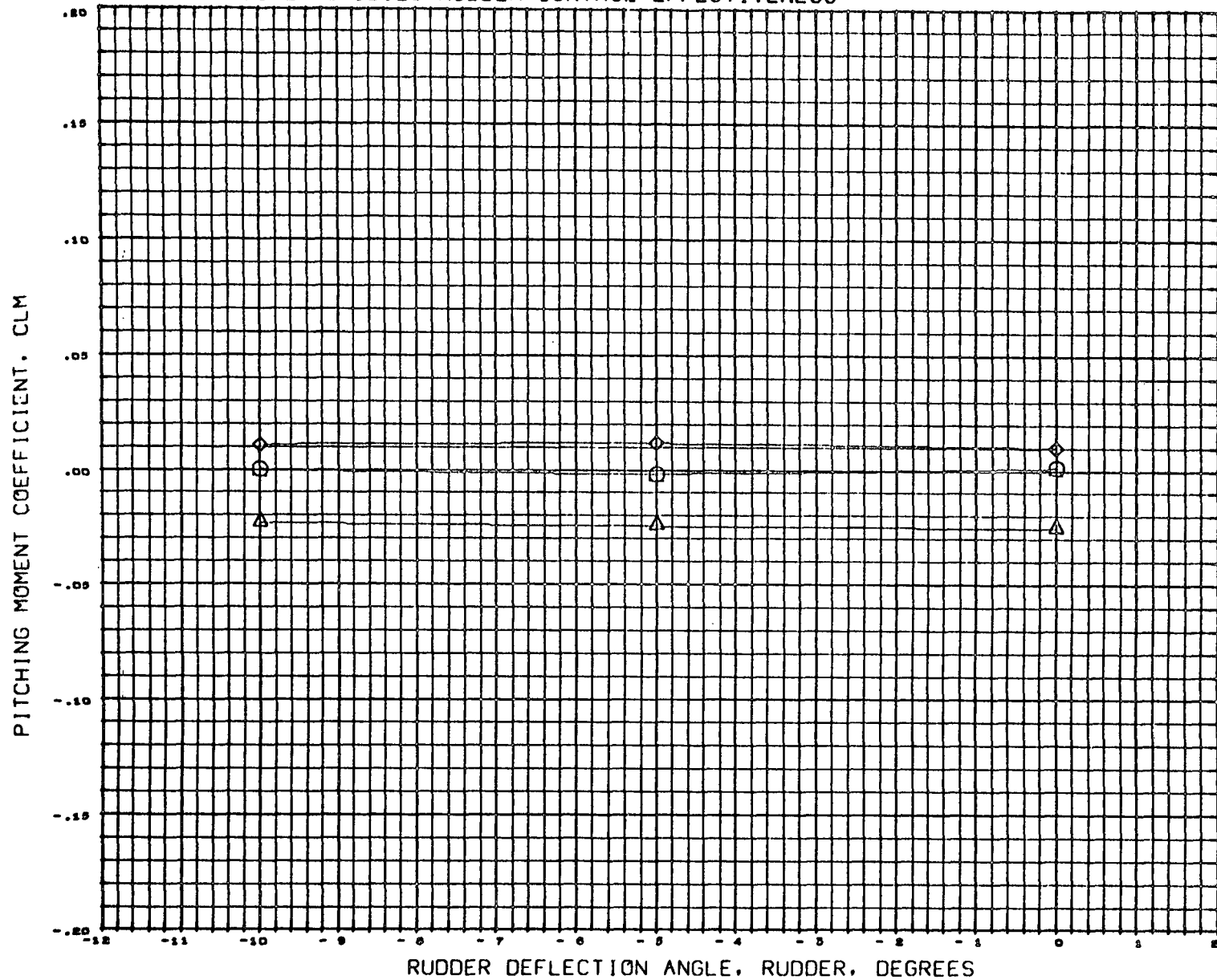
SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	0.000	<u>MACH</u>	1.000	<u>BETA</u>	0.000	GRF	1.3550	CG.FT.
△	0.150	<u>INCIDC</u>	3.000	<u>INCIDW</u>	0.000	LRF	3.4530	FEET
◇	15.500	<u>MSFLOW</u>	0.000	<u>AILRON</u>	0.000	BRF	3.4530	FEET
		<u>CANARD</u>	0.000	<u>ELEVTR</u>	0.000	XMRP	2.3950	FEET
		<u>WNGPOS</u>	1.000	<u>CNDPOS</u>	1.000	YMRP	0.0000	FEET
		DATA HIST. CODE	1H			ZMRP	0.0167	FEET
						SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-RUDDER CONTROL EFFECTIVENESS



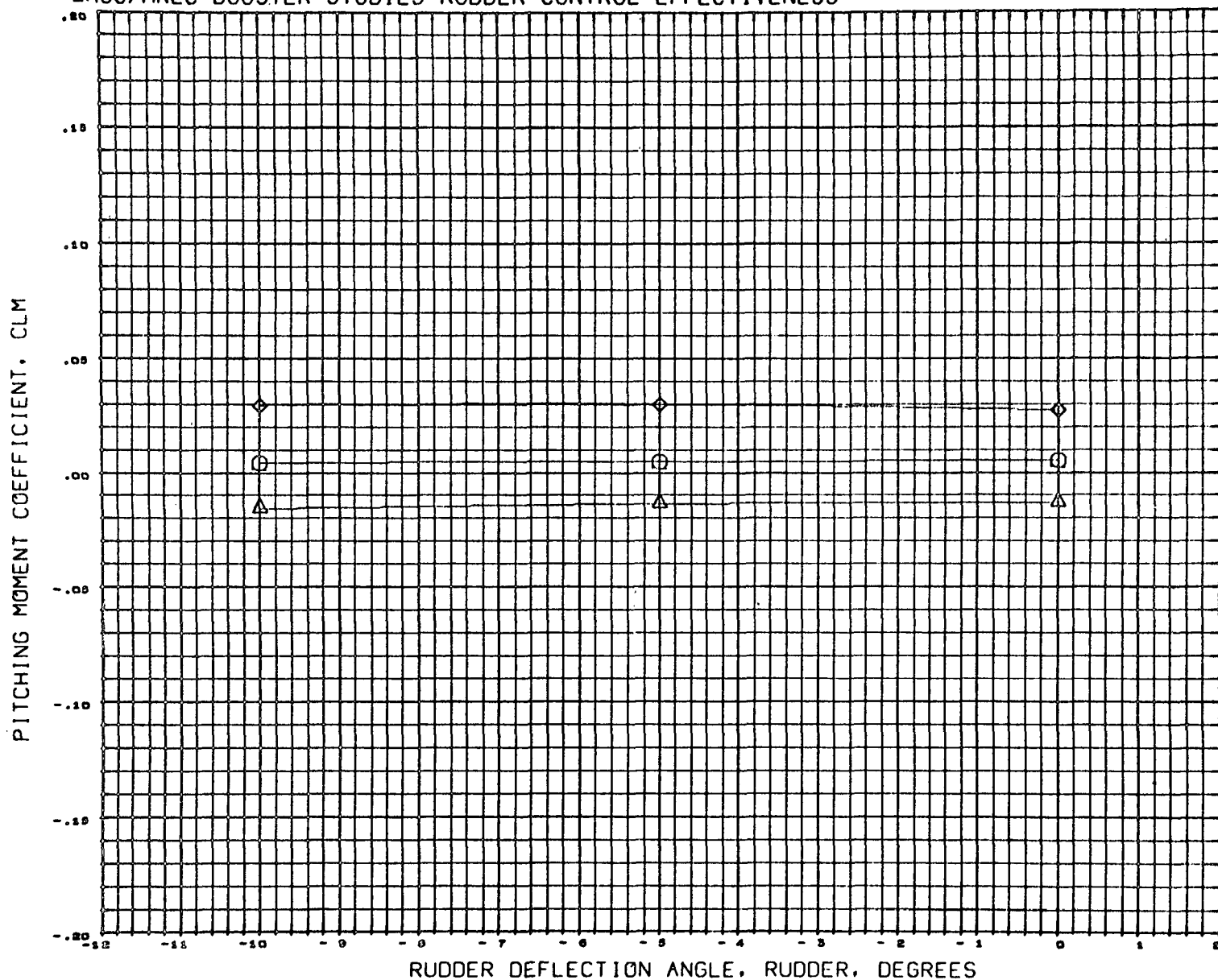
SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	0.000	<u>MACH</u>	0.700	<u>BETA</u>	0.000	BREF	1.3550	80. FT.
△	0.150	<u>INCIDC</u>	3.000	<u>INCIDW</u>	0.000	LREF	3.4530	FEET
◇	15.900	<u>MSFLOW</u>	0.000	<u>AILRON</u>	0.000	BREF	3.4530	FEET
		<u>CANARD</u>	0.000	<u>ELEVTR</u>	0.000	XMRP	2.5950	FEET
		<u>WNGPOS</u>	1.000	<u>CNDPOS</u>	1.000	YMRP	0.0000	FEET
		<u>DATA HIST. CODE</u>	IM			ZMRP	0.0187	FEET
						SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-RUDDER CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	0.000	<u>MACH</u>	0.800	<u>BETA</u>	0.000	SRF	1.3980	SQ. FT.
△	0.150	<u>INCIDC</u>	3.000	<u>INCIDW</u>	0.000	LRP	3.4980	FEET
◇	15.500	<u>MSFLOW</u>	0.000	<u>AILRON</u>	0.000	BRP	3.4530	FEET
		<u>CANARD</u>	0.000	<u>ELEVTR</u>	0.000	XMRP	2.9980	FEET
		<u>WNGPOS</u>	1.000	<u>CNDPOS</u>	1.000	YMRP	0.0000	FEET
		<u>DATA HIST. CODE</u>	IM			ZMRP	0.0167	FEET
						SCALE	0.0180	SCALE

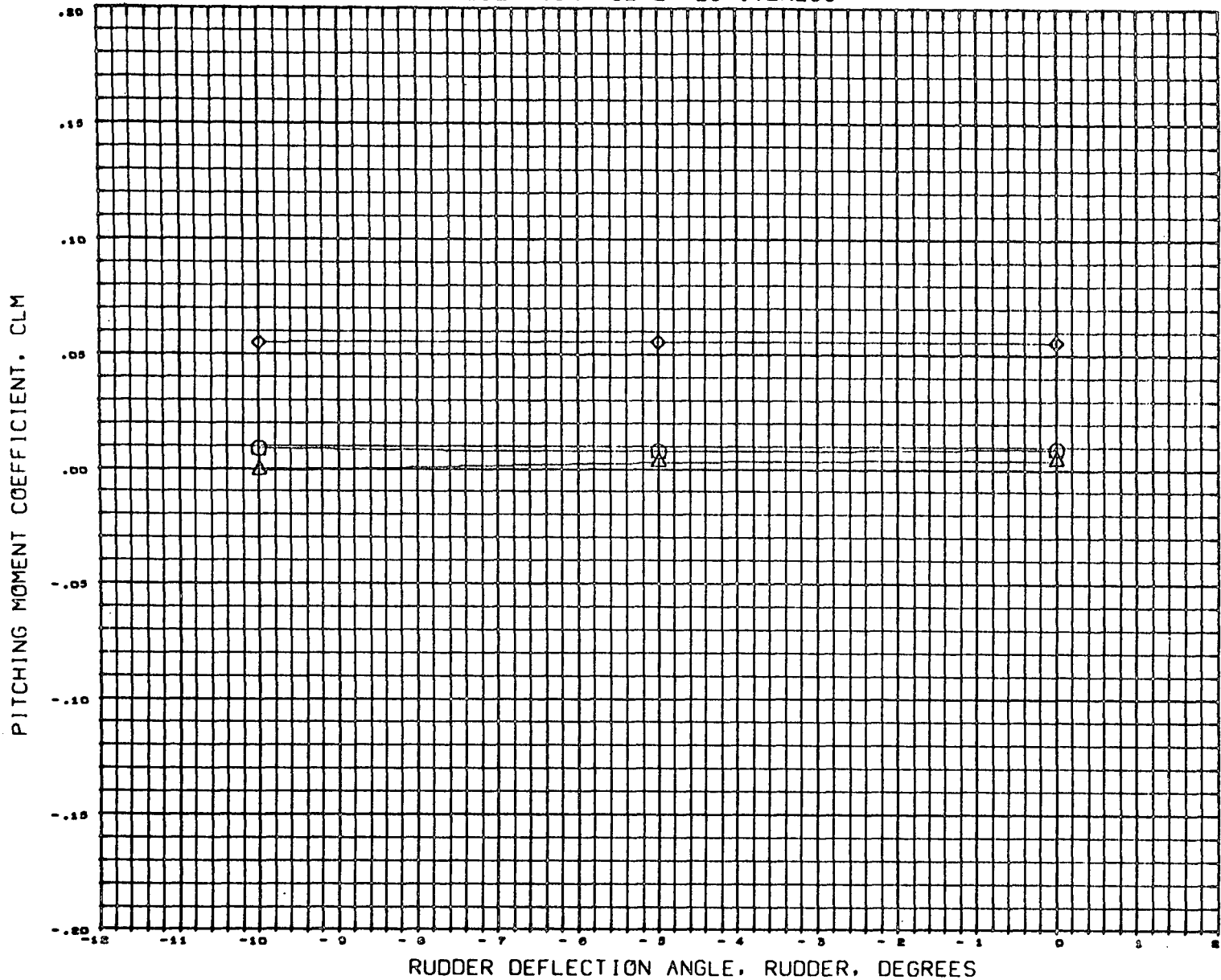
LMSC/HREC BOOSTER STUDIES-RUDDER CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES			
○	0.000	MACH	0.000	BETA	0.000
△	0.150	INCIDC	3.000	INCIDW	0.000
◇	15.900	MSFLOW	0.000	AILRON	0.000
		CANARD	0.000	ELEVTR	0.000
		ENGPOS	1.000	CNDPOS	1.000
		DATA HIST. CODE	IM		

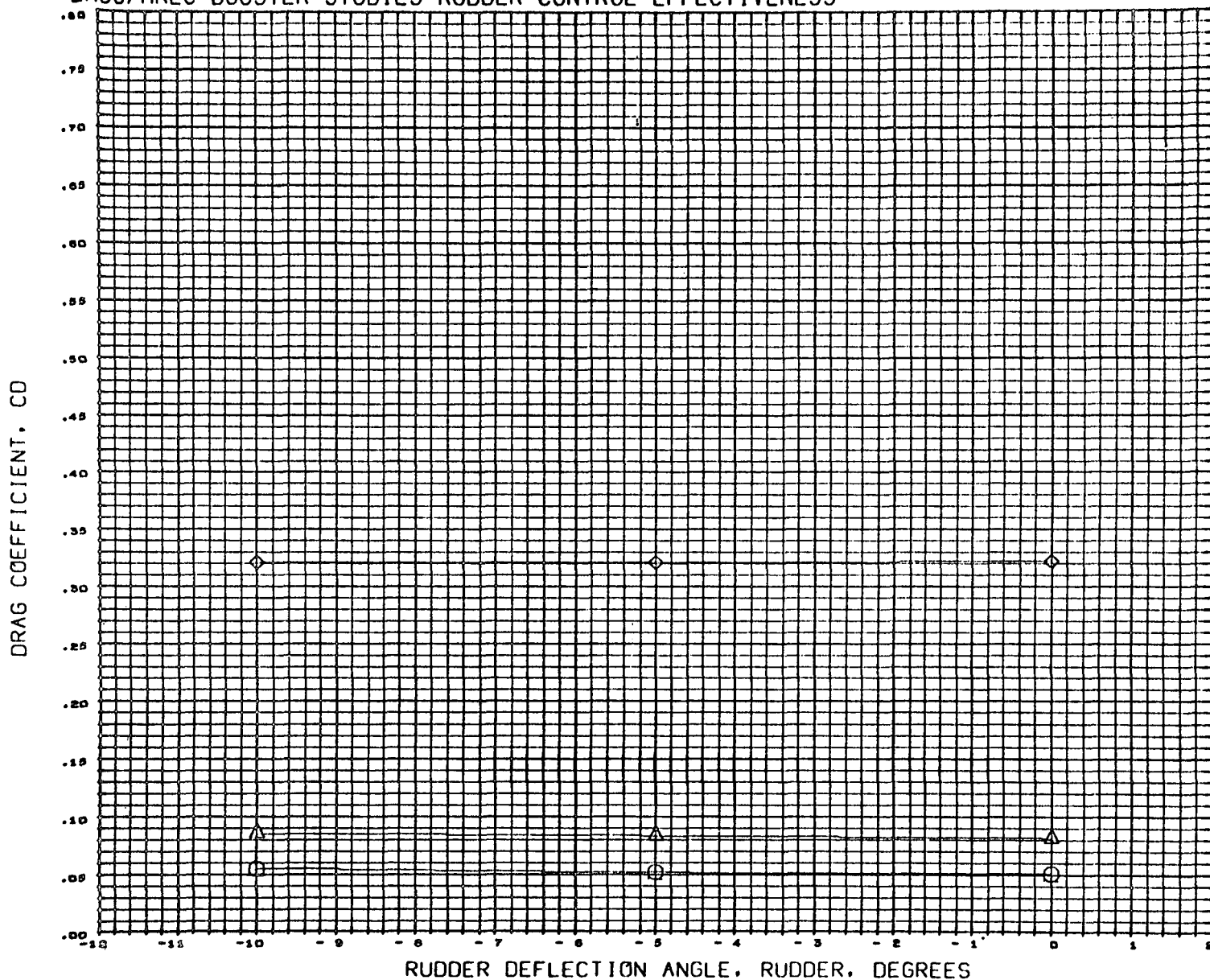
REFERENCE INFORMATION		
SRF	1.3550	80.FT.
LRF	3.4530	FEET
BRF	3.4530	FEET
XMRP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0167	FEET
SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-RUDDER CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION	
○	0.000	MACH	1.000	BETA	0.000	SREF	1.3550 SQ. FT.
△	0.150	INCIDC	3.000	INCIDW	0.000	LREF	3.4530 FEET
◇	0.300	MSFLOW	0.000	AILRON	0.000	OREP	3.4530 FEET
		CANARD	0.000	ELEVTR	0.000	XMRP	2.3950 FEET
		WNGPOS	1.000	CNDPOS	1.000	YMRP	0.0000 FEET
		DATA HIST. CODE	1M			ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

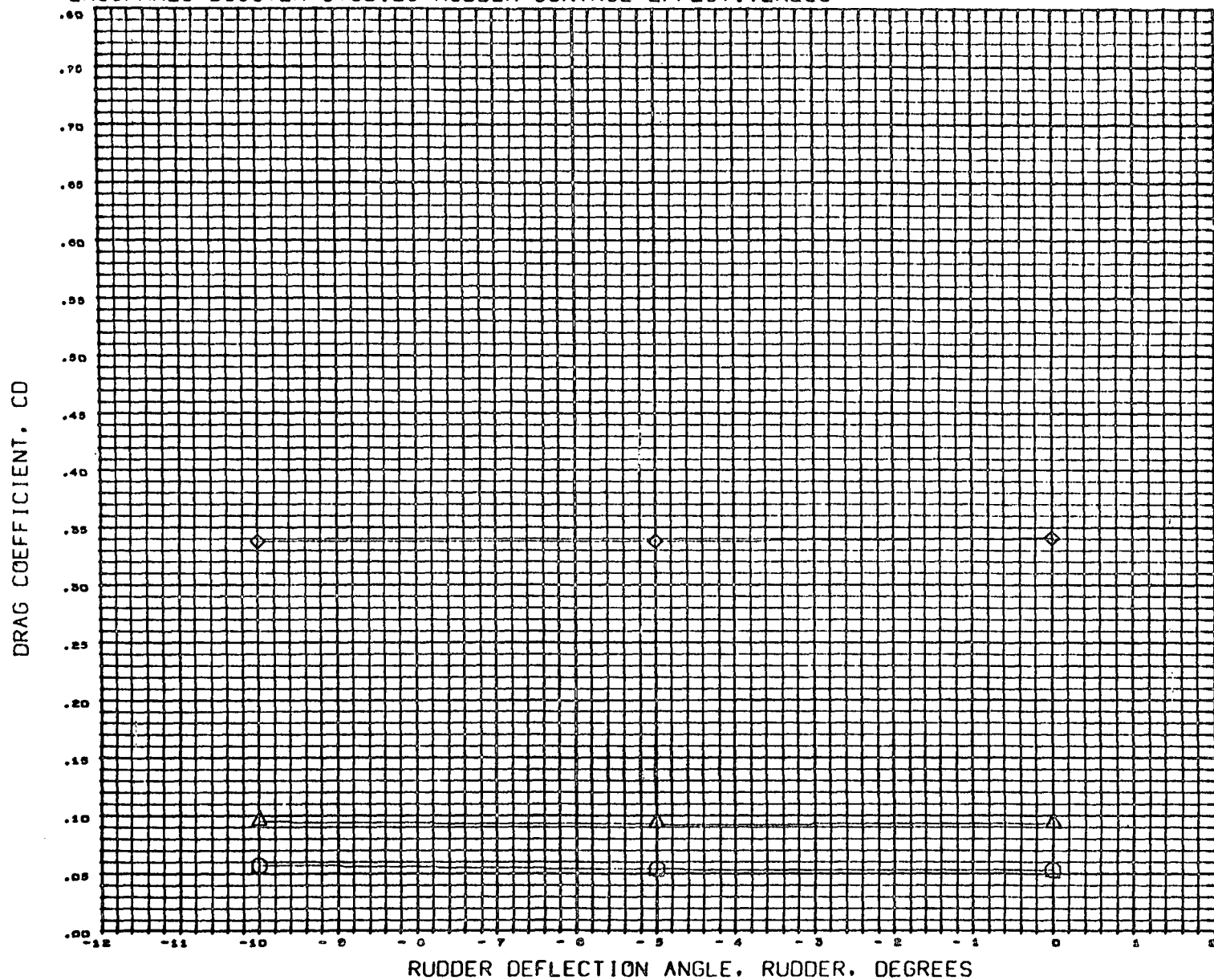
LMSC/HREC BOOSTER STUDIES-RUDDER CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES			
○	0.000	MACH	0.700	BETA	0.000
△	0.350	INCIDC	3.000	INCIDW	0.000
◇	15.900	MSFLOW	0.000	AILRON	0.000
		CANARD	0.000	ELEVTR	0.000
		WNGPOS	1.000	CNDPOS	1.000
		DATA HIST. CODE IM			

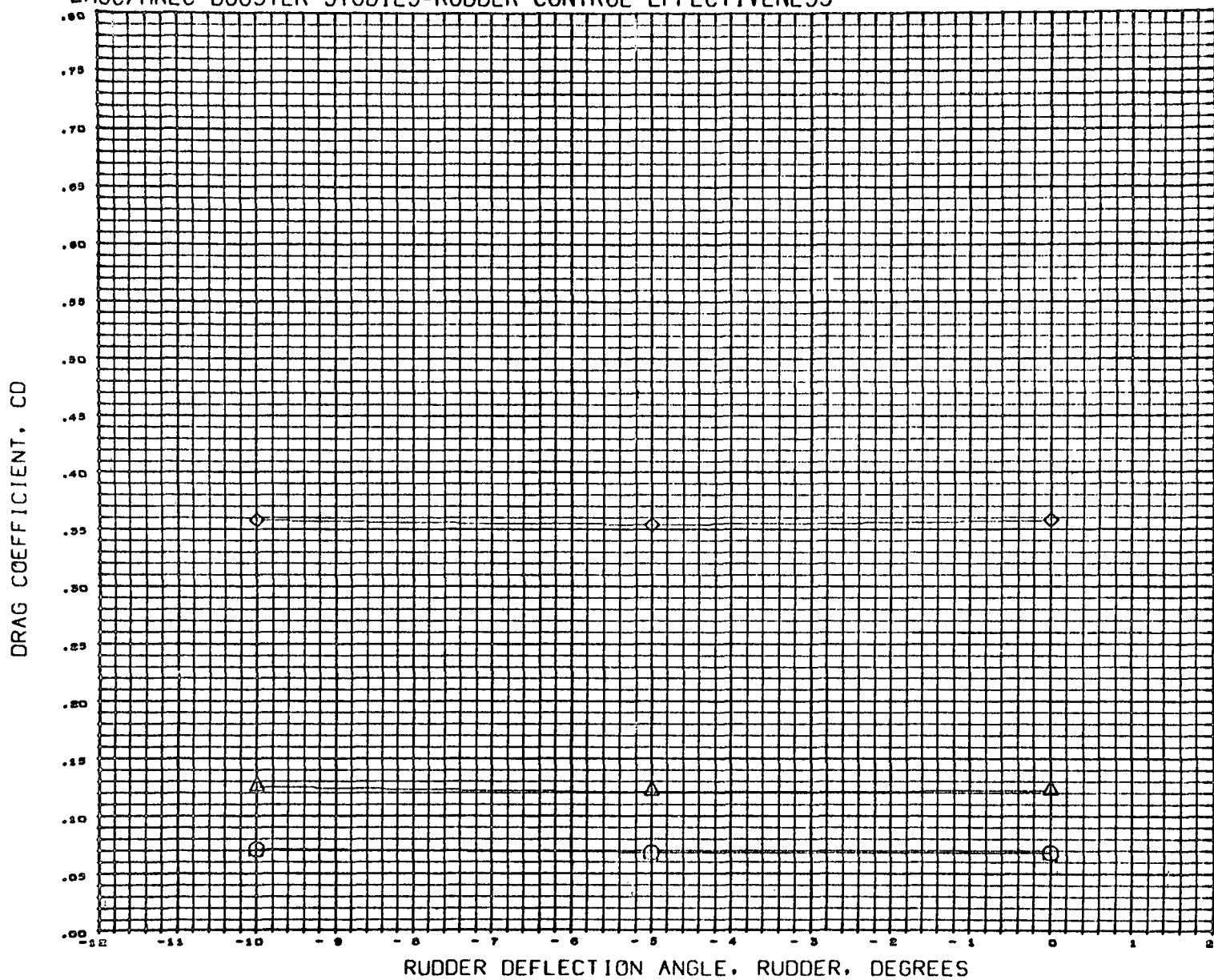
REFERENCE INFORMATION		
SREF	1.3550	00.FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.5080	FEET
YMRP	0.0000	FEET
ZMRP	0.0167	FEET
SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-RUDDER CONTROL EFFECTIVENESS



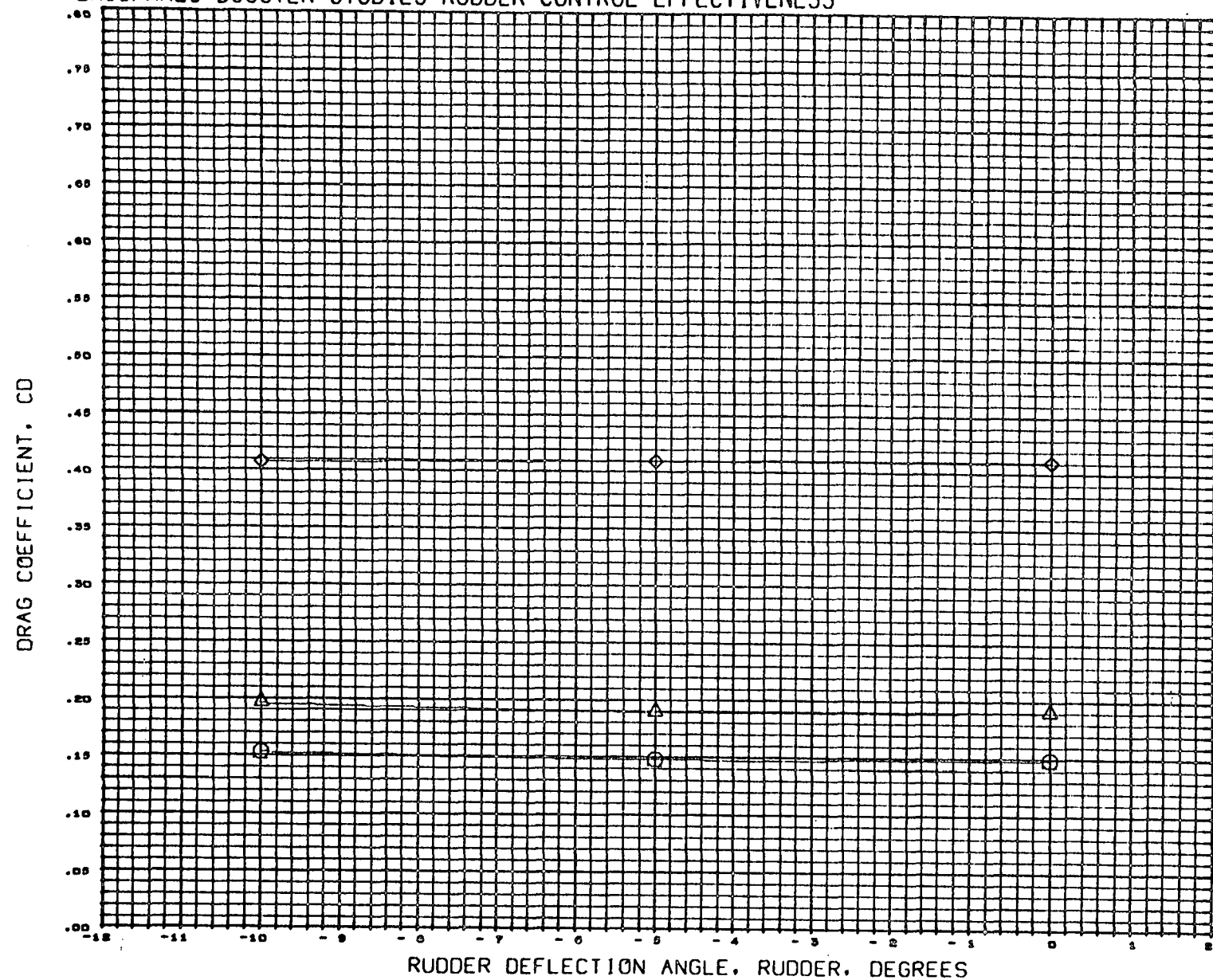
SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	0.000	<u>MACH</u>	0.000	<u>BETA</u>	0.000	BREF	1.3550	00.FT.
△	6.150	<u>INCIDC</u>	3.000	<u>INCIDW</u>	0.000	LREF	3.4550	FEET
◇	10.500	<u>MSFLOW</u>	0.000	<u>AILRON</u>	0.000	BREF	3.4550	FEET
		<u>CANARD</u>	0.000	<u>ELEVTR</u>	0.000	XMRP	2.0000	FEET
		<u>WNGPOS</u>	1.000	<u>CNDPOS</u>	1.000	YMRP	0.0000	FEET
		DATA HIST. CODE	IM			ZMRP	0.0107	FEET
						SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-RUDDER CONTROL EFFECTIVENESS



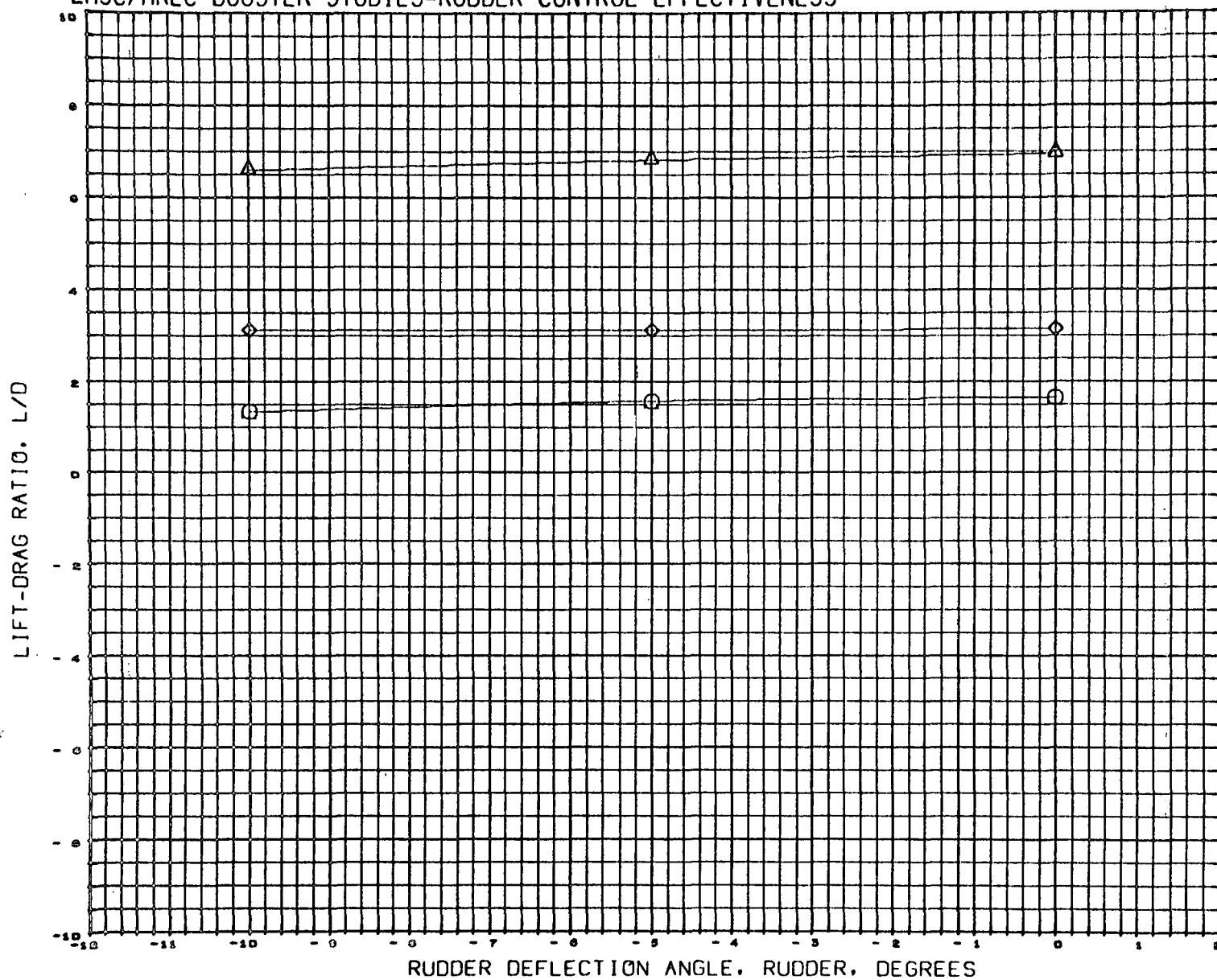
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○	0.000	<u>MACH</u>	0.900	<u>BETA</u>	0.000	<u>BREF</u>	1.3550	SQ. FT.
△	0.150	<u>INCIDC</u>	3.000	<u>INCIDW</u>	0.000	<u>LREF</u>	3.4530	FEET
◇	15.500	<u>MSFLOW</u>	0.000	<u>AILRON</u>	0.000	<u>BREF</u>	3.4530	FEET
		<u>CANARD</u>	0.000	<u>ELEVTR</u>	0.000	<u>XMRP</u>	2.9050	FEET
		<u>WNGPOS</u>	1.000	<u>CNDPOS</u>	1.000	<u>YMRP</u>	0.0000	FEET
		DATA HIST. CODE		1M		<u>ZMRP</u>	0.0167	FEET
						<u>SCALE</u>	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-RUDDER CONTROL EFFECTIVENESS



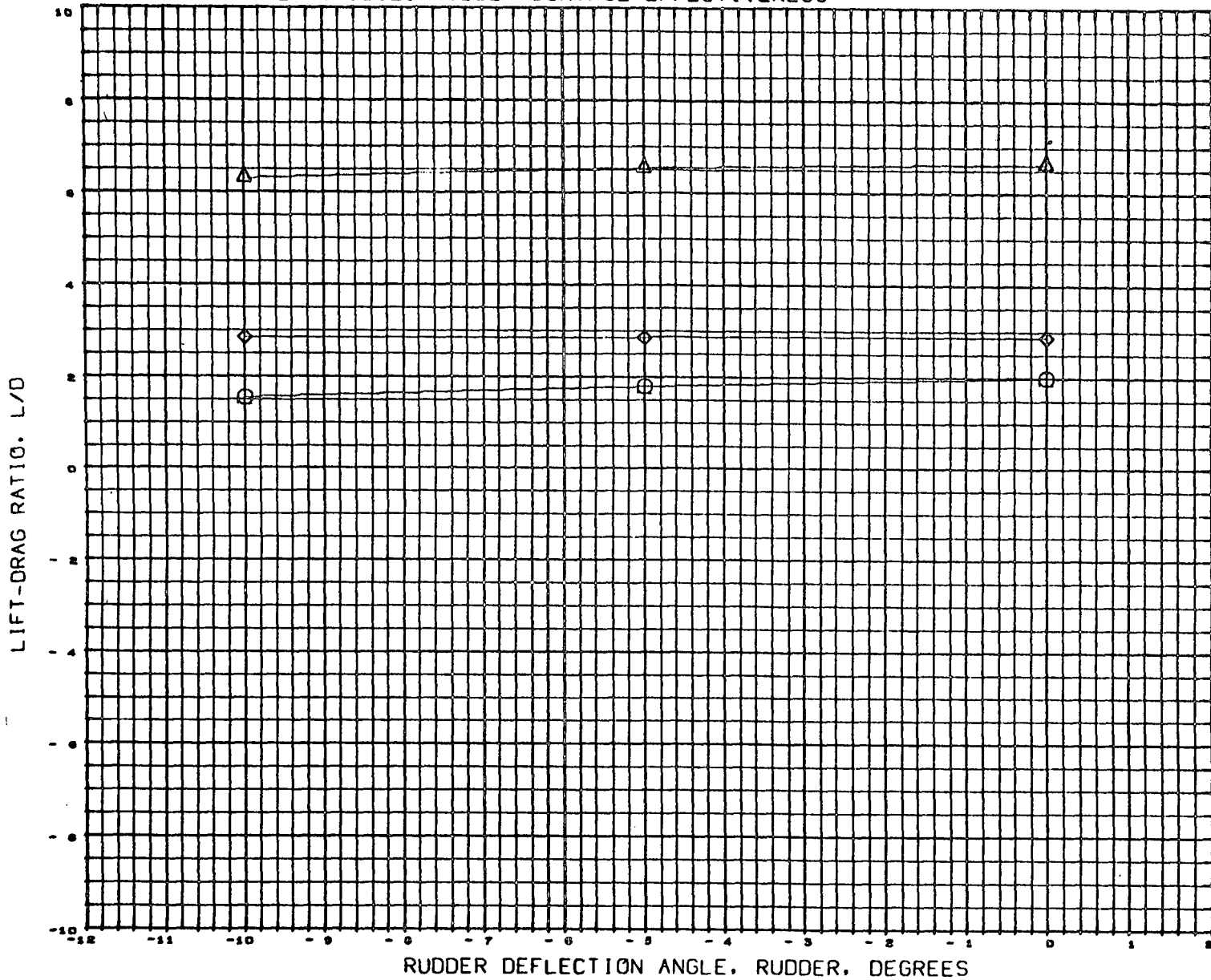
SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	0.000	MACH	1.000	BETA	0.000	SREF	1.3550	80, FT.
△	0.150	INCIDC	3.000	INCIDW	0.000	LREF	3.4530	FEET
◇	15.500	MSFLOW	0.000	AILRON	0.000	OREF	3.4530	FEET
		CANARD	0.000	ELEVTR	0.000	XMRP	2.5050	FEET
		WNGPOS	1.000	CNDPOS	1.000	YMRP	0.0000	FEET
		DATA HIST. CODE	IM			ZMRP	0.0167	FEET
						SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-RUDDER CONTROL EFFECTIVENESS



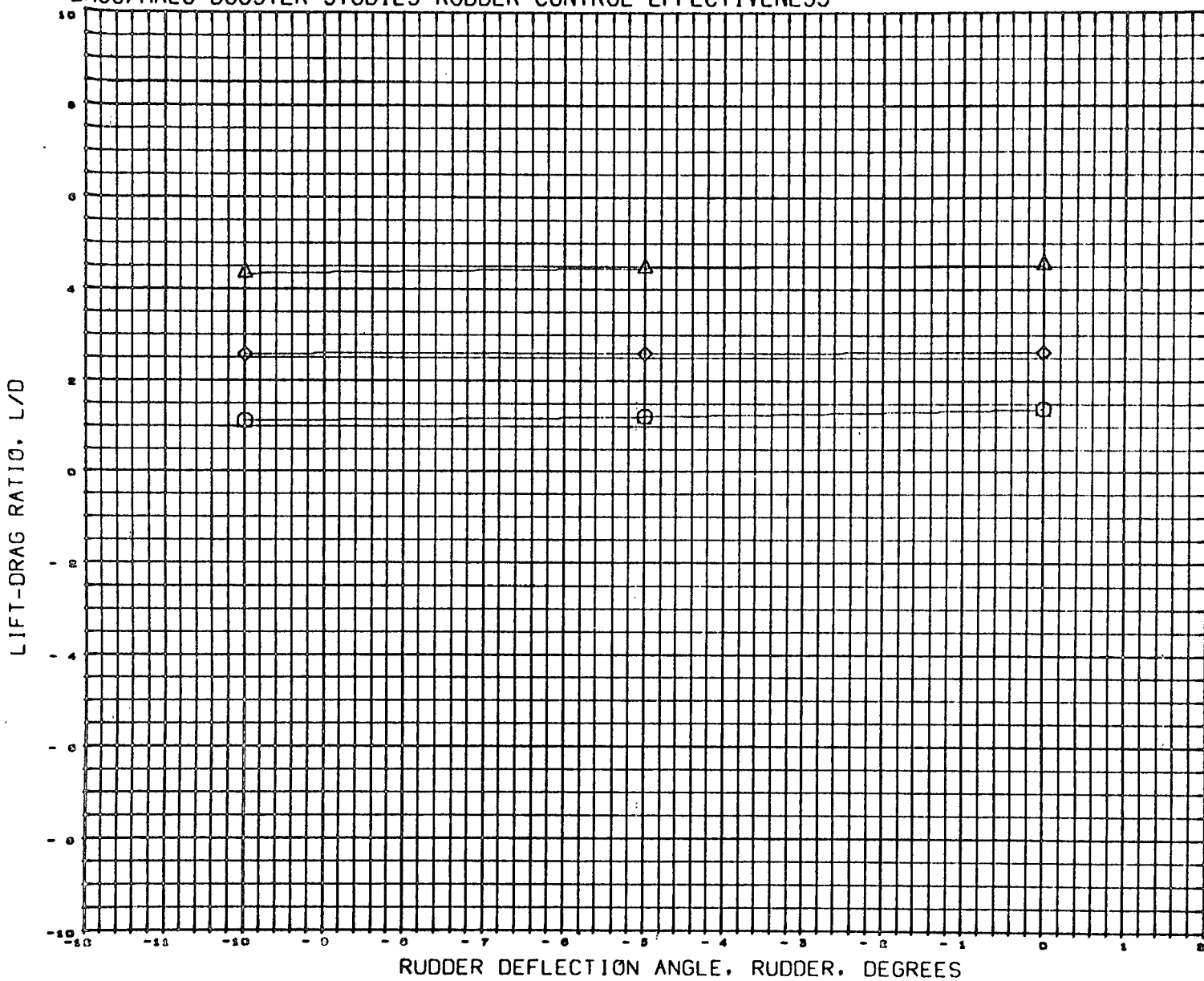
SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	0.000	<u>MACH</u>	0.700	<u>BETA</u>	0.000	SREF	1.3550	SQ. FT.
△	6.150	INCIDC	3.000	INCIDW	0.000	LREF	3.4530	FEET
◇	10.900	MSFLOW	0.000	AILRON	0.000	BREF	3.4530	FEET
		CANARD	0.000	ELEVTR	0.000	XMRF	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000	YMRF	0.0000	FEET
		DATA MIST. CODE	1M			ZMRF	0.0187	FEET
						SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-RUDDER CONTROL EFFECTIVENESS



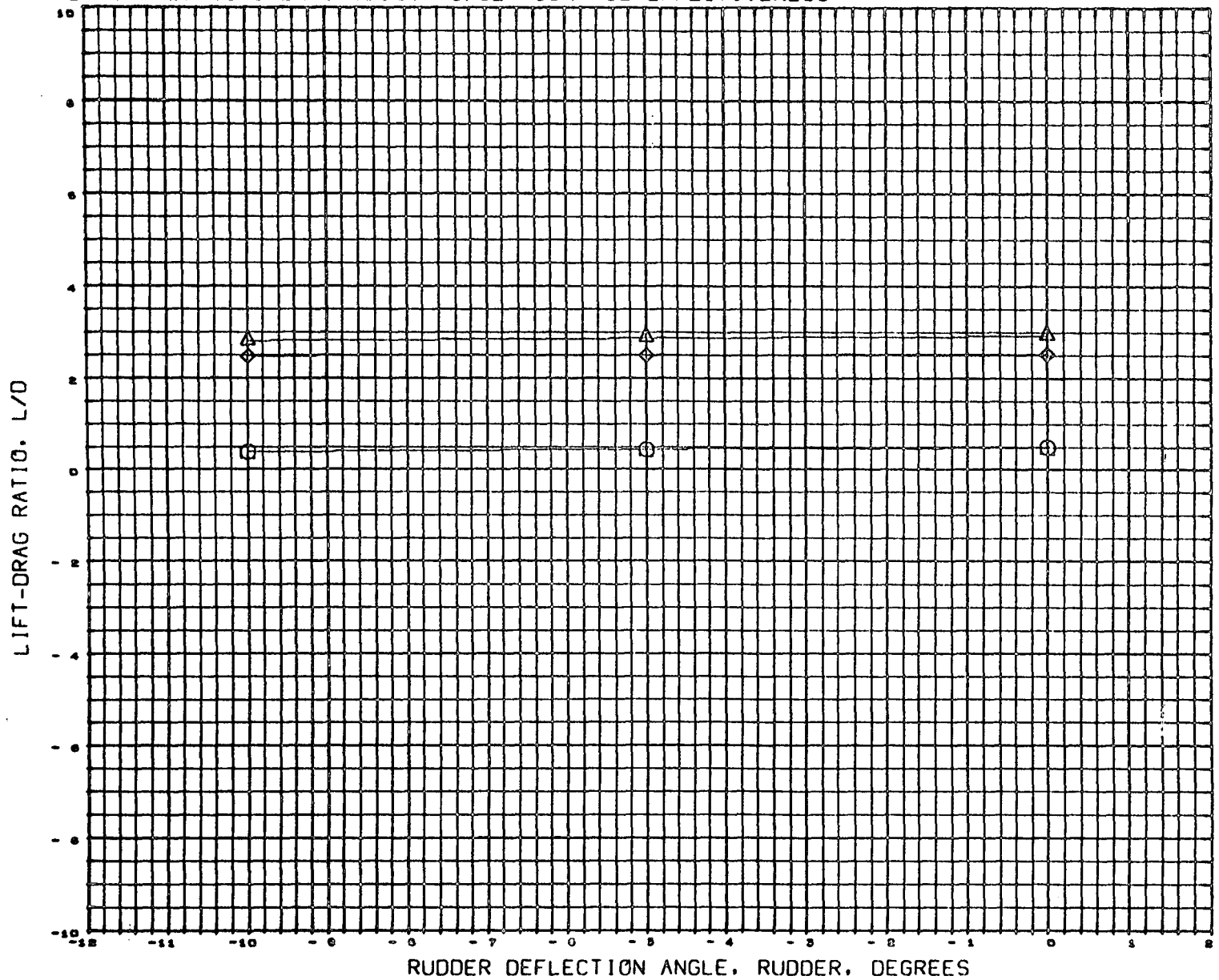
SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	0.000	MACH	0.800	BETA	0.000	SREF	1.3890	80. FT.
△	0.150	INCIDC	3.000	INCIDW	0.000	LREF	3.4530	FEET
◇	19.500	MSFLOW	0.000	AILRON	0.000	BREF	3.4530	FEET
		CANARD	0.000	ELEVTR	0.000	XMRP	2.3950	FEET
		WNGPOS	1.000	CNDPOS	1.000	YMRP	0.0000	FEET
		DATA HIST. CODE	1M			ZMRP	0.0187	FEET
						SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-RUDDER CONTROL EFFECTIVENESS



SYMBOL	PARAMETRIC VALUES						REFERENCE INFORMATION	
	ALPHA	MACH	INCIDC	INCIDW	AILRON	ELEVTR	SRFP	SQ.FT.
○	0.000	0.000	0.000	0.000	0.000	0.000	3.4530	FEET
△	0.190	0.000	0.000	0.000	0.000	0.000	3.4530	FEET
◇	19.900	0.000	0.000	0.000	0.000	0.000	2.5050	FEET
		CANARD	1.000	CNDPOS	1.000		VMRP	0.0000
		DATA HIST. CODE	IM				ZMRP	0.0167
							SCALE	0.0190

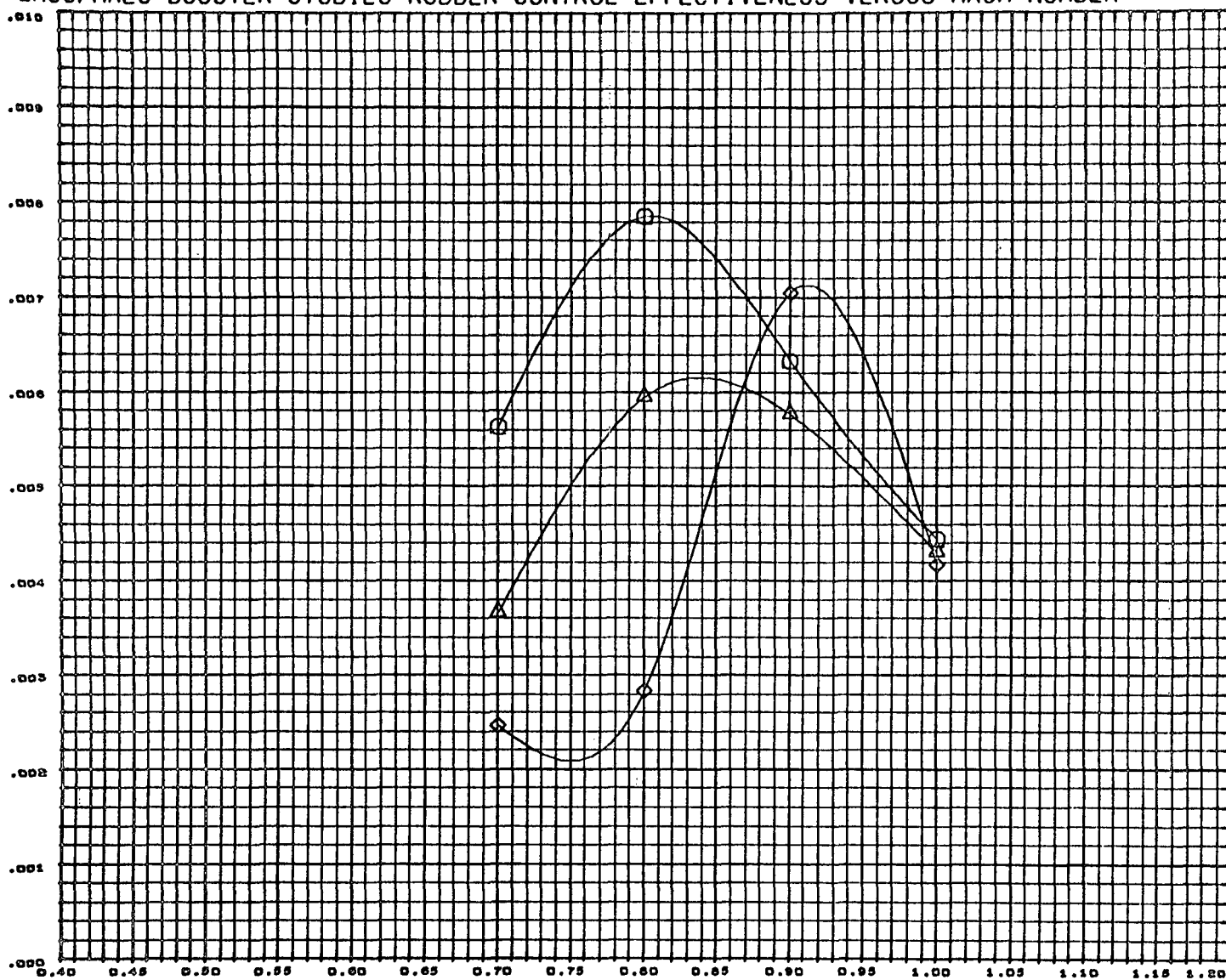
LMSC/HREC BOOSTER STUDIES-RUDDER CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	0.000	<u>MACH</u>	1.000	<u>BETA</u>	0.000	BREF	1.5550	SQ.FT.
△	0.150	<u>INCIDC</u>	3.000	<u>INCIDW</u>	0.000	LREF	3.4530	FEET
◇	15.500	<u>MSFLOW</u>	0.000	<u>AILRON</u>	0.000	BREF	3.4530	FEET
		<u>CANARD</u>	0.000	<u>ELEVTR</u>	0.000	XMRP	2.5030	FEET
		<u>WNGPOS</u>	1.000	<u>CNDPOS</u>	1.000	YMRP	0.0000	FEET
		<u>DATA HIST. CODE</u>	1M			ZMRP	0.0107	FEET
						SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-RUDDER CONTROL EFFECTIVENESS VERSUS MACH NUMBER

SIDE FORCE DUE TO RUDDER, DCY/DR. PER DEGREE



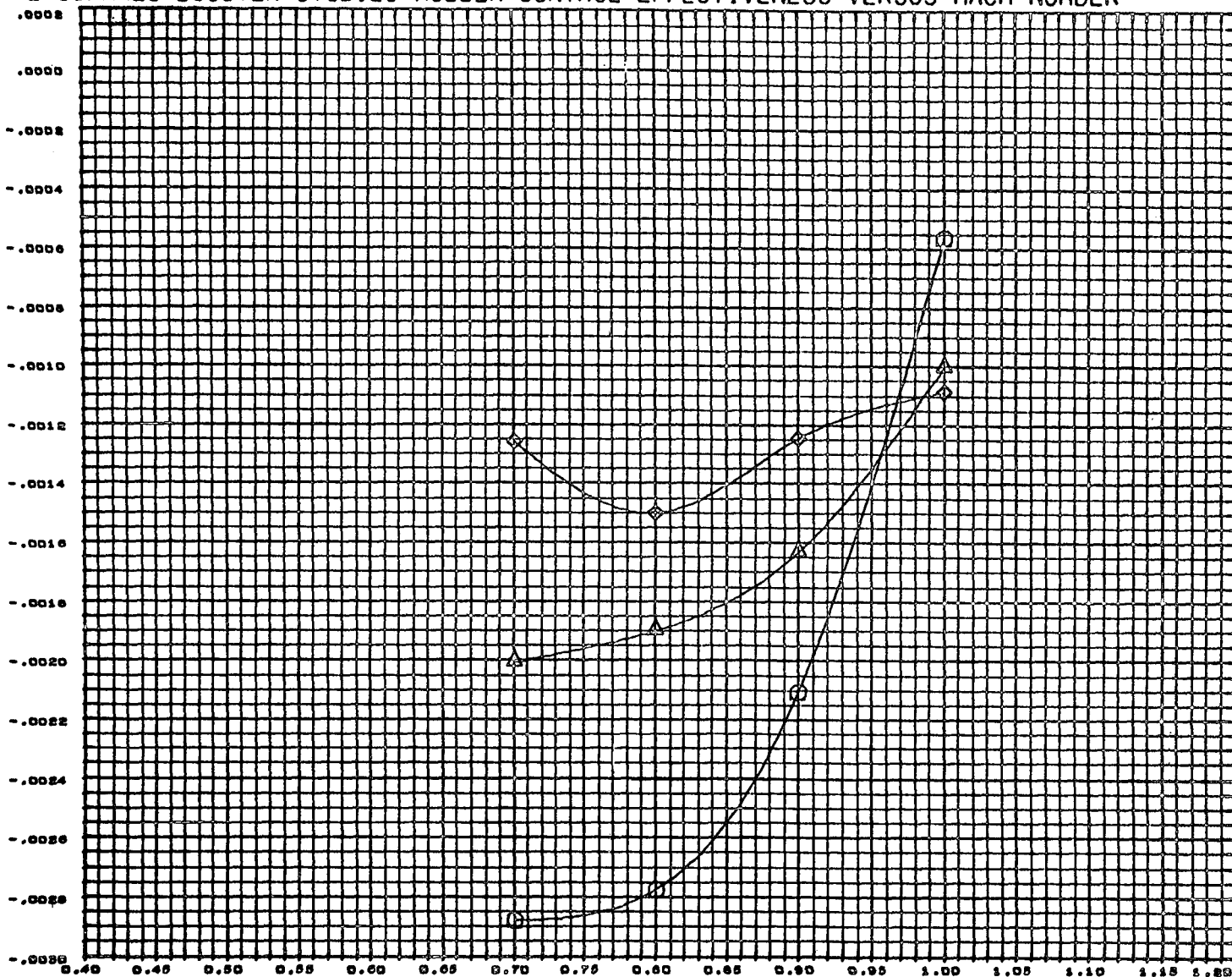
MACH NUMBER

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(INS004)	NORDC-3210,M8FC/LMSC BOOSTER B1C2F2W1V1	0.016	0.000	0.000	0.000	SRFP	1.3550 SQ.FT.
(DNS005)	NORDC-3210,M8FC/LMSC BOOSTER B1C2F2W1V1	6.147	0.000	0.000	0.000	LREF	3.4930 FEET
(ONS006)	NORDC-3210,M8FC/LMSC BOOSTER B1C2F2W1V1	15.473	0.000	0.000	0.000	SRFP	0.4530 FEET
						XMRP	3.9980 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0180 SCALE

DETA 0.000

LMSC/HREC BOOSTER STUDIES-RUDDER CONTROL EFFECTIVENESS VERSUS MACH NUMBER

YAWING MOMENT DUE TO RUDDER, DCYNDR. PER DEGREE, (BODY AXIS)



MACH NUMBER

DATA SET SYMBOL
(IN3004)
(DN3005)
(DN3006)

CONFIGURATION DESCRIPTION

N8RDC-3210, N8FC/LM8C BOOSTER B1C2F2W1V1
N8RDC-3210, N8FC/LM8C BOOSTER B1C2F2W1V1
N8RDC-3210, N8FC/LM8C BOOSTER B1C2F2W1V1

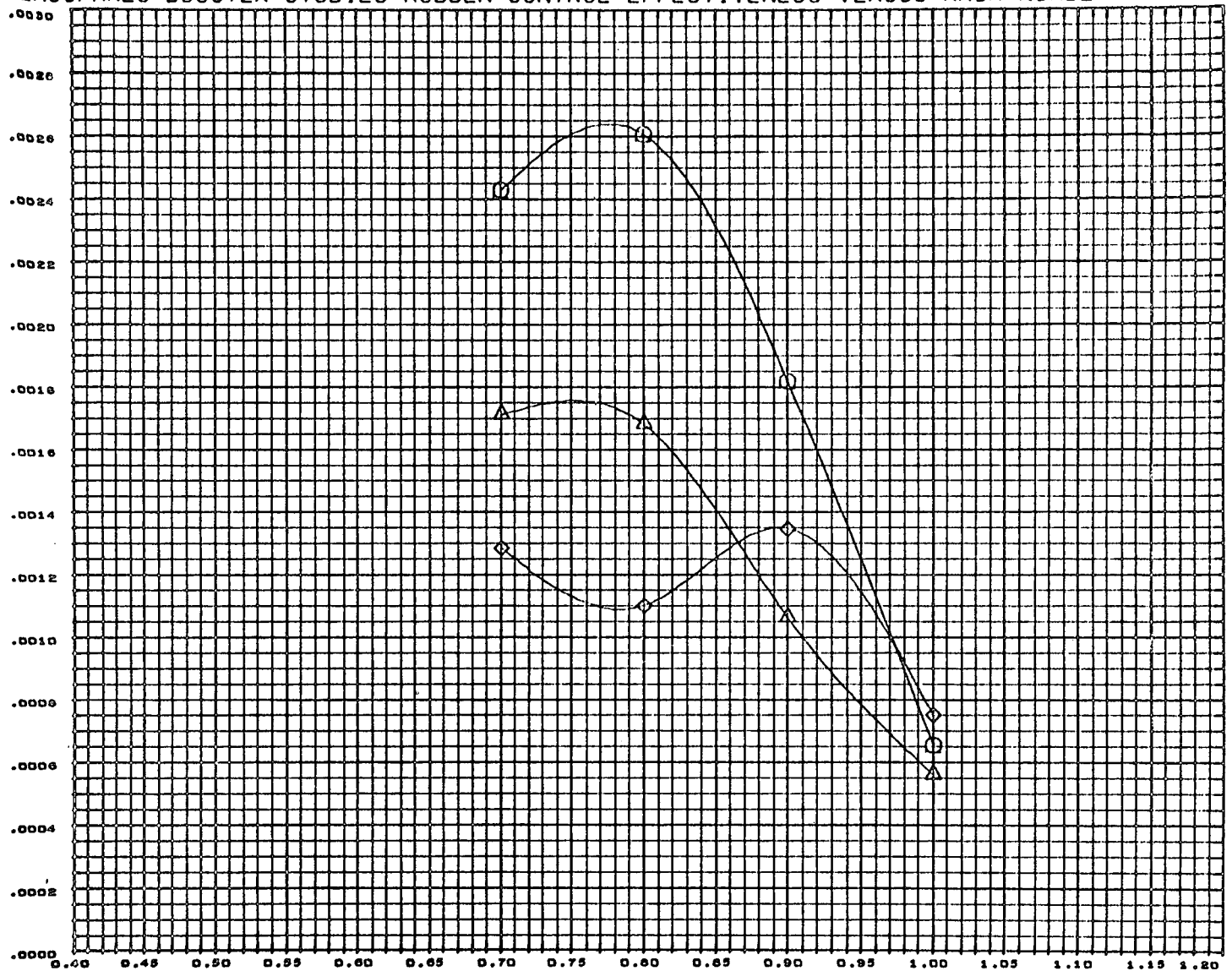
ALPHA	RUDDER	CANARD	ELEVTR
0.016	0.000	0.000	0.000
0.147	0.000	0.000	0.000
15.473	0.000	0.000	0.000

REFERENCE INFORMATION	
BREF	1.3000 SQ.FT.
LREF	3.4550 FEET
BREF	3.4000 FEET
XMRP	2.0000 FEET
YMRP	0.0000 FEET
ZMRP	0.0107 FEET
SCALE	0.0100 SCALE

BETA 0.000

LMSC/HREC BOOSTER STUDIES-RUDDER CONTROL EFFECTIVENESS VERSUS MACH NUMBER

ROLLING MOMENT DUE TO RUDDER, DCBLDR. PER DEGREE. (BODY AXIS)



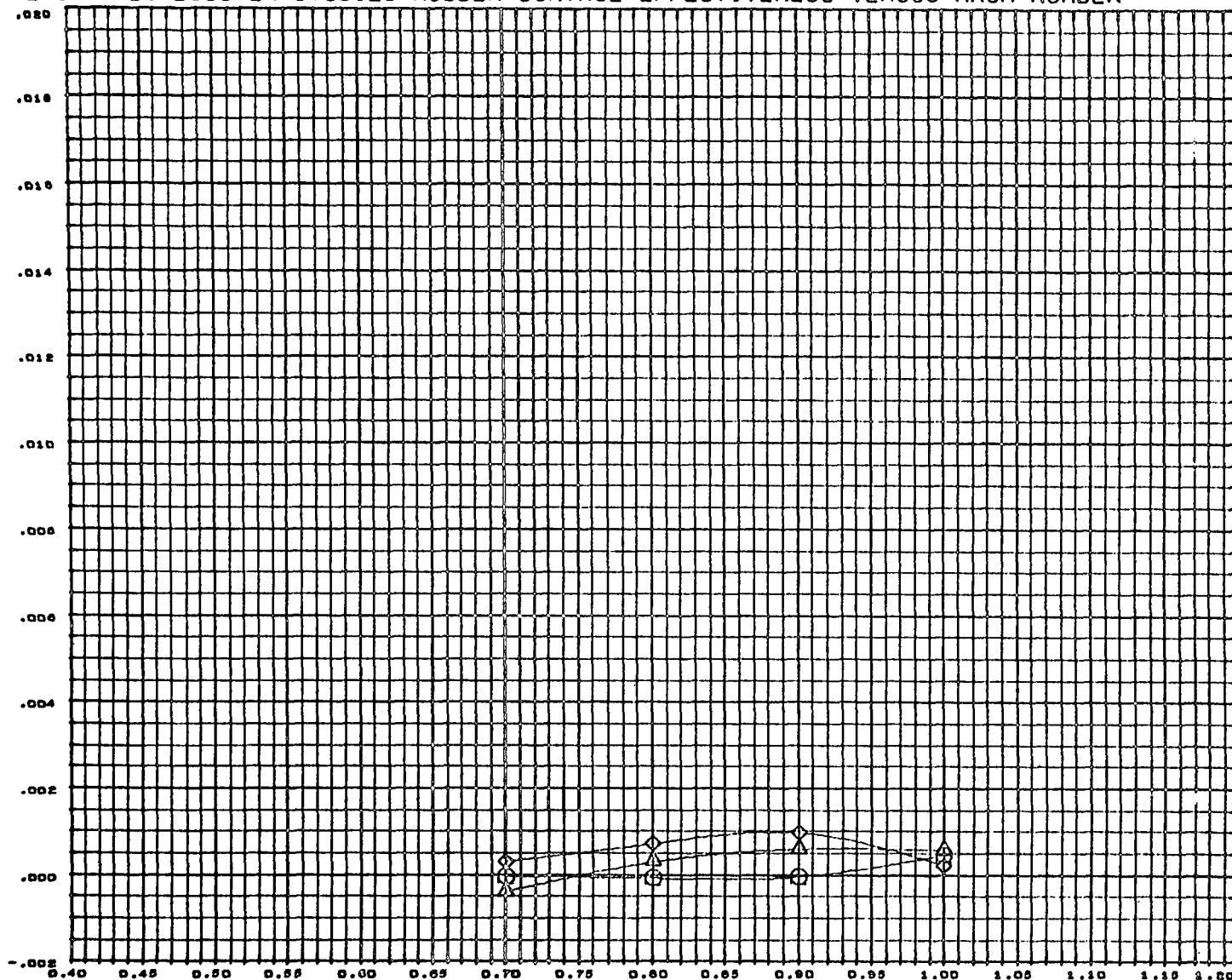
MACH NUMBER

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(IN3004)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.016	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(DN3005)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.147	0.000	0.000	0.000	LREF	3.4530 FEET
(DN3006)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.473	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0107 FEET
						SCALE	0.0150 SCALE

DETA 0.000

LMSC/HREC BOOSTER STUDIES-RUDDER CONTROL EFFECTIVENESS VERSUS MACH NUMBER

DRAG DUE TO RUDDER, DCD/DR, PER DEGREE

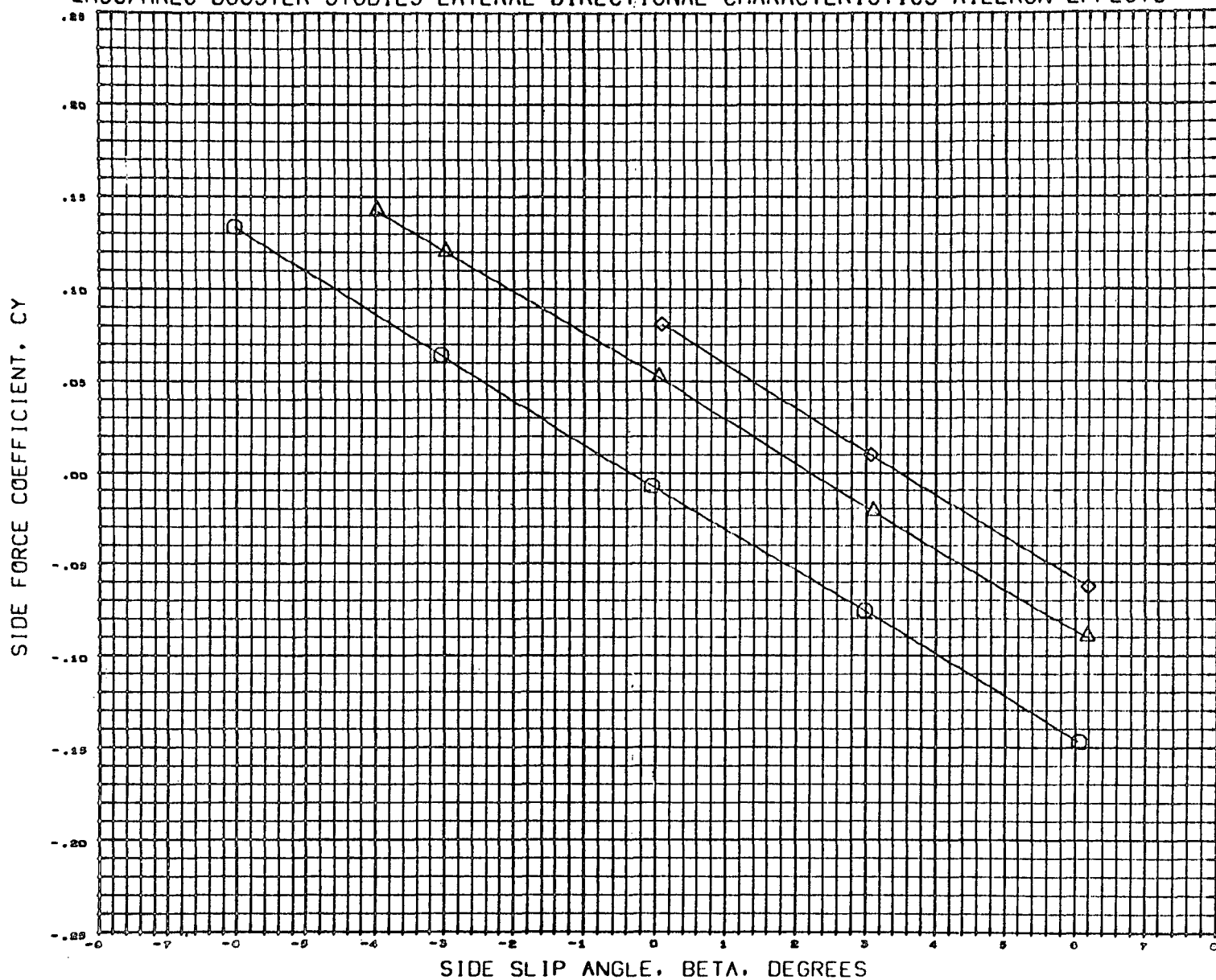


MACH NUMBER

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(IN3004)	NSRDC-3210,M3FC/LMSC BOOSTER B1C2F2W1V1	0.016	0.000	0.000	0.000	SREF	1.9550 SQ.FT.
(DN3005)	NSRDC-3210,M3FC/LMSC BOOSTER B1C2F2W1V1	6.147	0.000	0.000	0.000	LREF	3.4530 FEET
(DN3006)	NSRDC-3210,M3FC/LMSC BOOSTER B1C2F2W1V1	15.473	0.000	0.000	0.000	BREF	3.4530 FEET
						XMHP	2.5030 FEET
						YMHP	0.0000 FEET
						ZMHP	0.0167 FEET
						SCALE	0.0150 SCALE

BETA 0.000

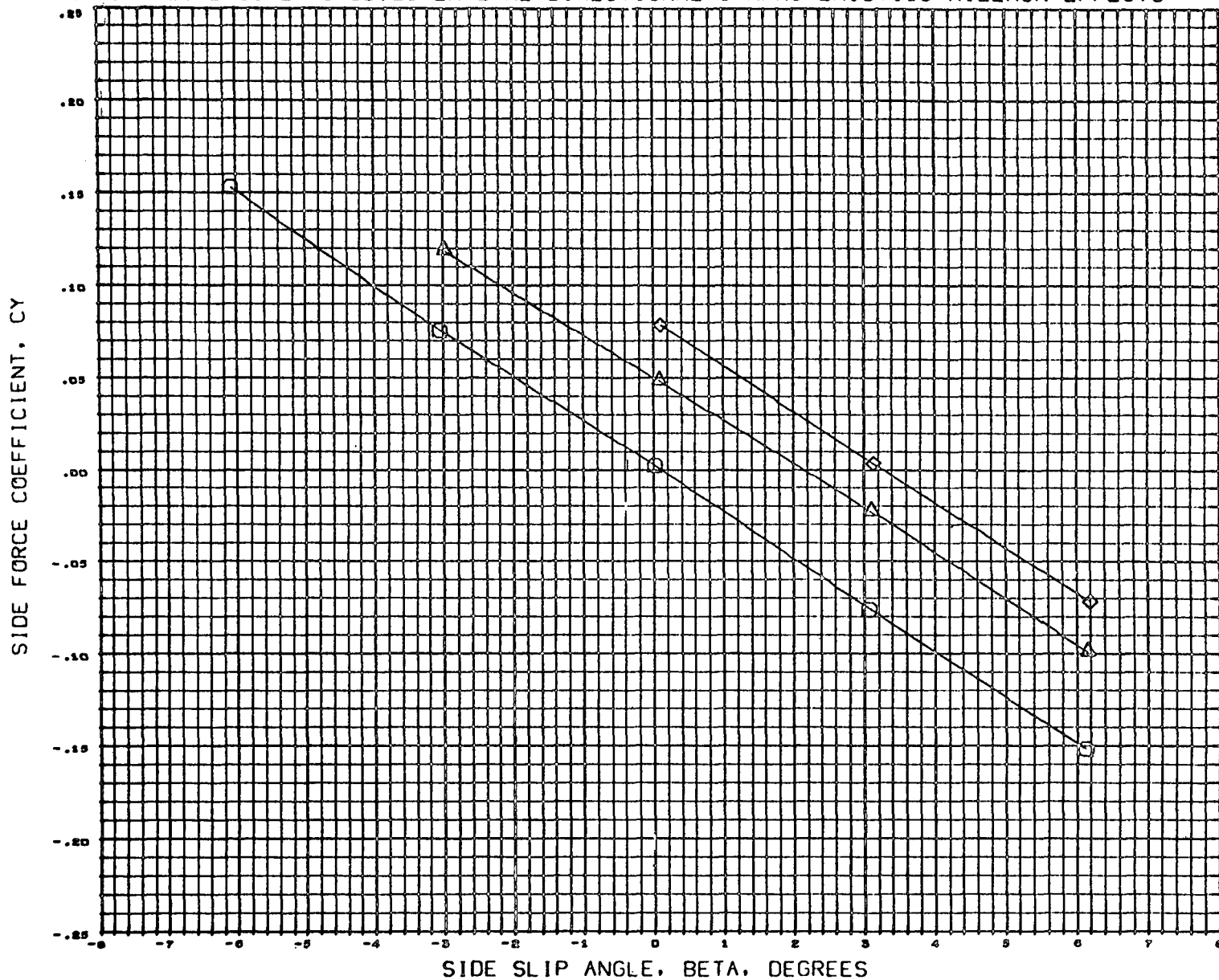
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(RN3002)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.017	0.000	0.000	0.000	SREF	1.3550 DD.FT.
(RN3036)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.046	0.000	10.000	0.000	LREF	3.4530 FEET
(RN3042)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.122	0.000	20.000	0.000	SREF	3.4630 FEET
						XMRP	2.3080 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.009

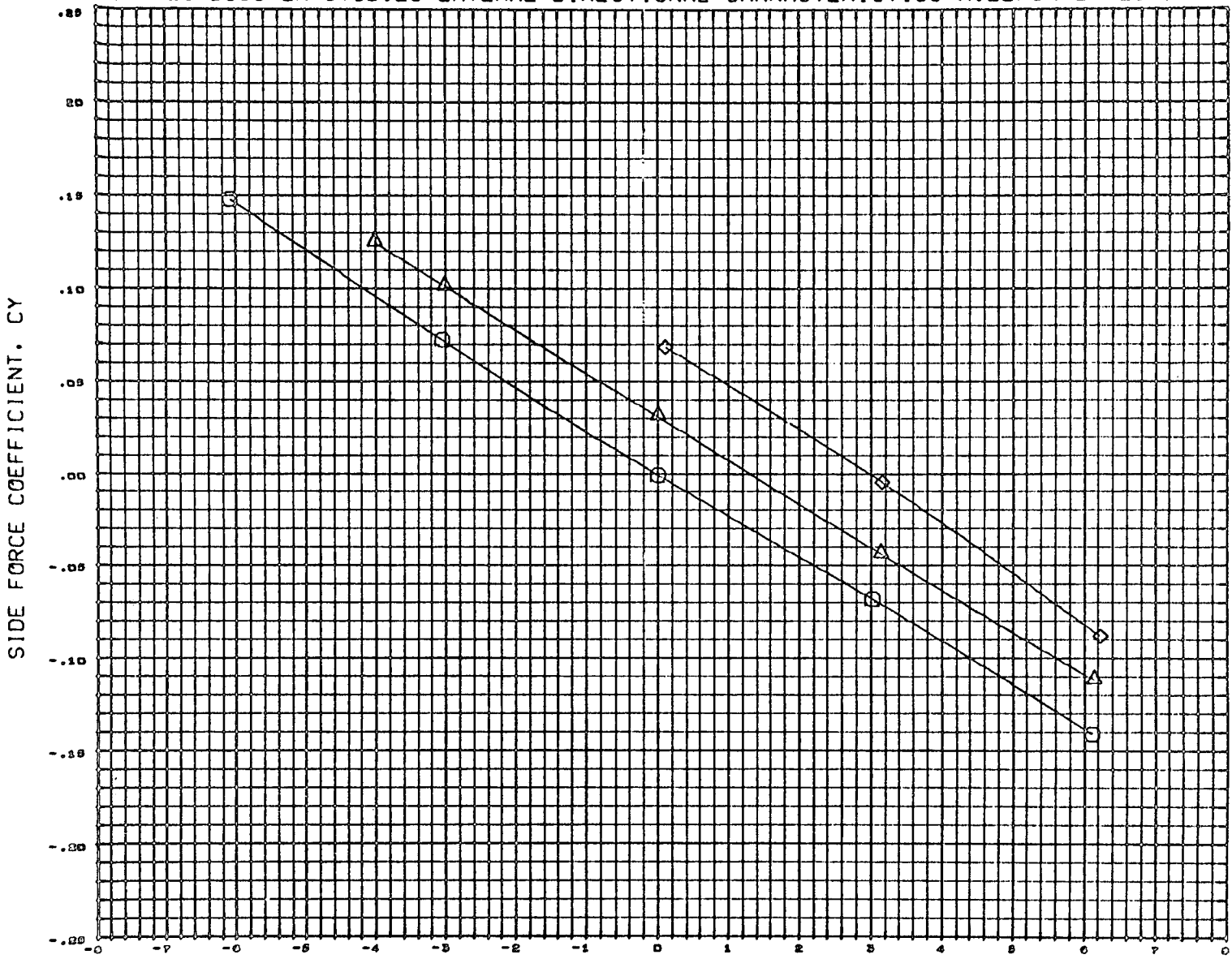
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(RNS002)	N5RDC-3210,M8FC/LMSC BOOSTER B1C2F2W1V1	0.017	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RNS038)	N5RDC-3210,M8FC/LMSC BOOSTER B1C2F2W1V1	0.046	0.000	10.000	0.000	LREF	3.4930 FEET
(RNS042)	N5RDC-3210,M8FC/LMSC BOOSTER B1C2F2W1V1	0.122	0.000	20.000	0.000	GREF	3.4930 FEET
						XMRP	8.5000 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.800

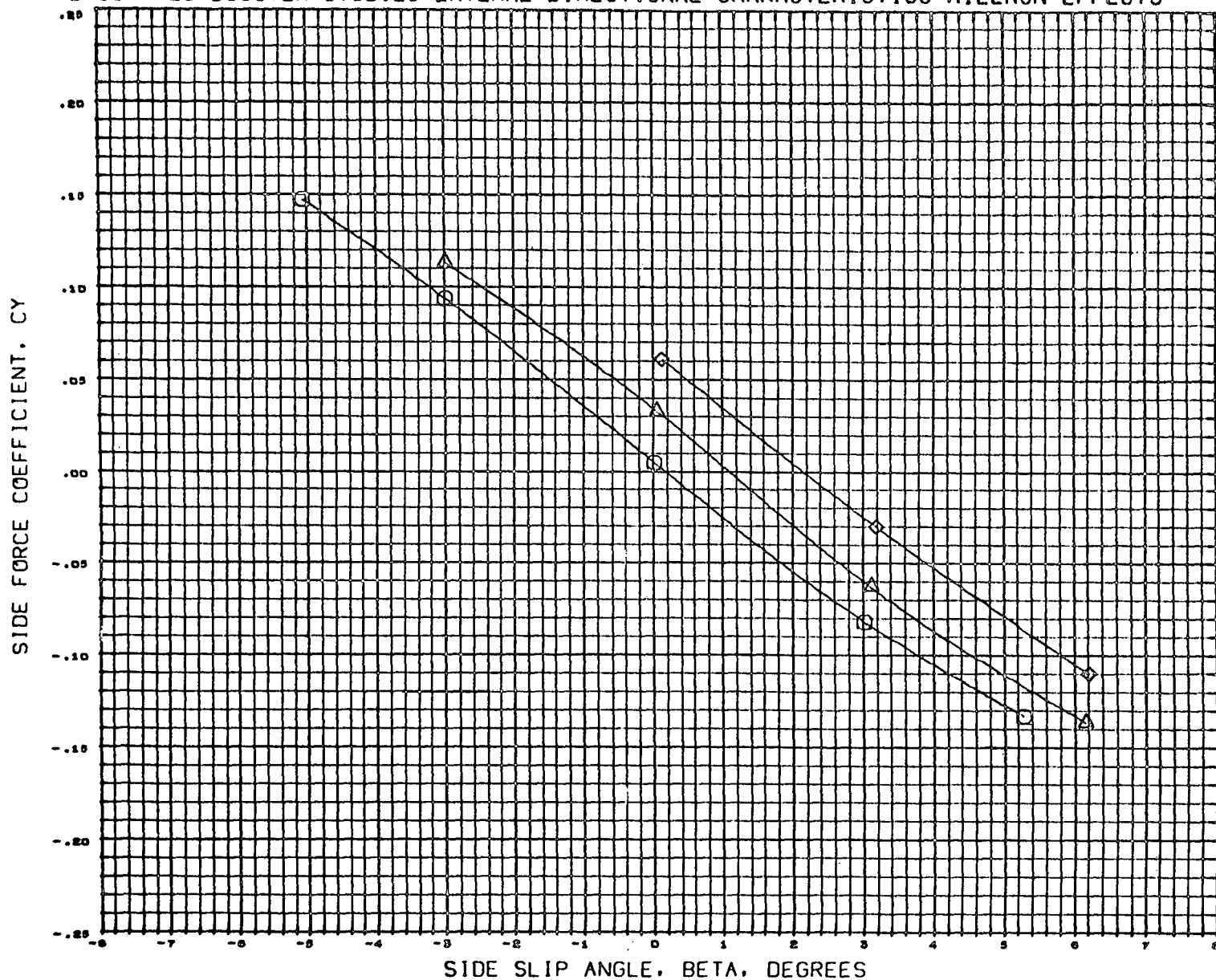
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(RN3002)	NRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.017	0.000	0.000	0.000	SREF	1.3550 DG.FT.
(RN3036)	NRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.046	0.000	10.000	0.000	LREF	3.4530 FEET
(RN3042)	NRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.122	0.000	20.000	0.000	BREF	3.4530 FEET
						XMRF	2.5050 FEET
						YMRF	0.0000 FEET
						ZMRF	0.0107 FEET
						SCALE	0.0150 SCALE

MACH 0.900

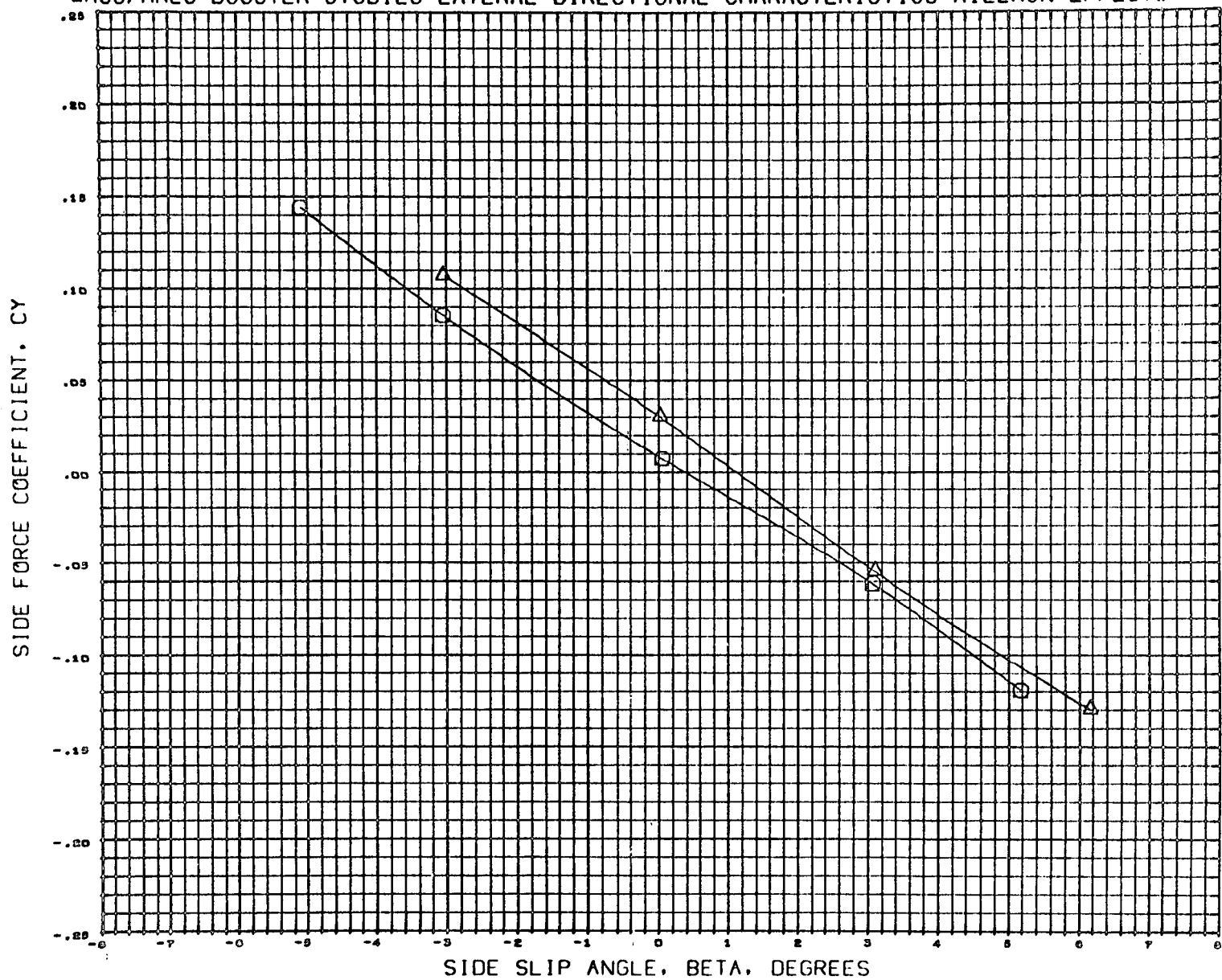
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(RNS002)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.017	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RNS030)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.046	0.000	10.000	0.000	LREF	3.4930 FEET
(RNS042)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.122	0.000	20.000	0.000	BREF	3.4830 FEET
						XMRP	2.5050 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 1.001

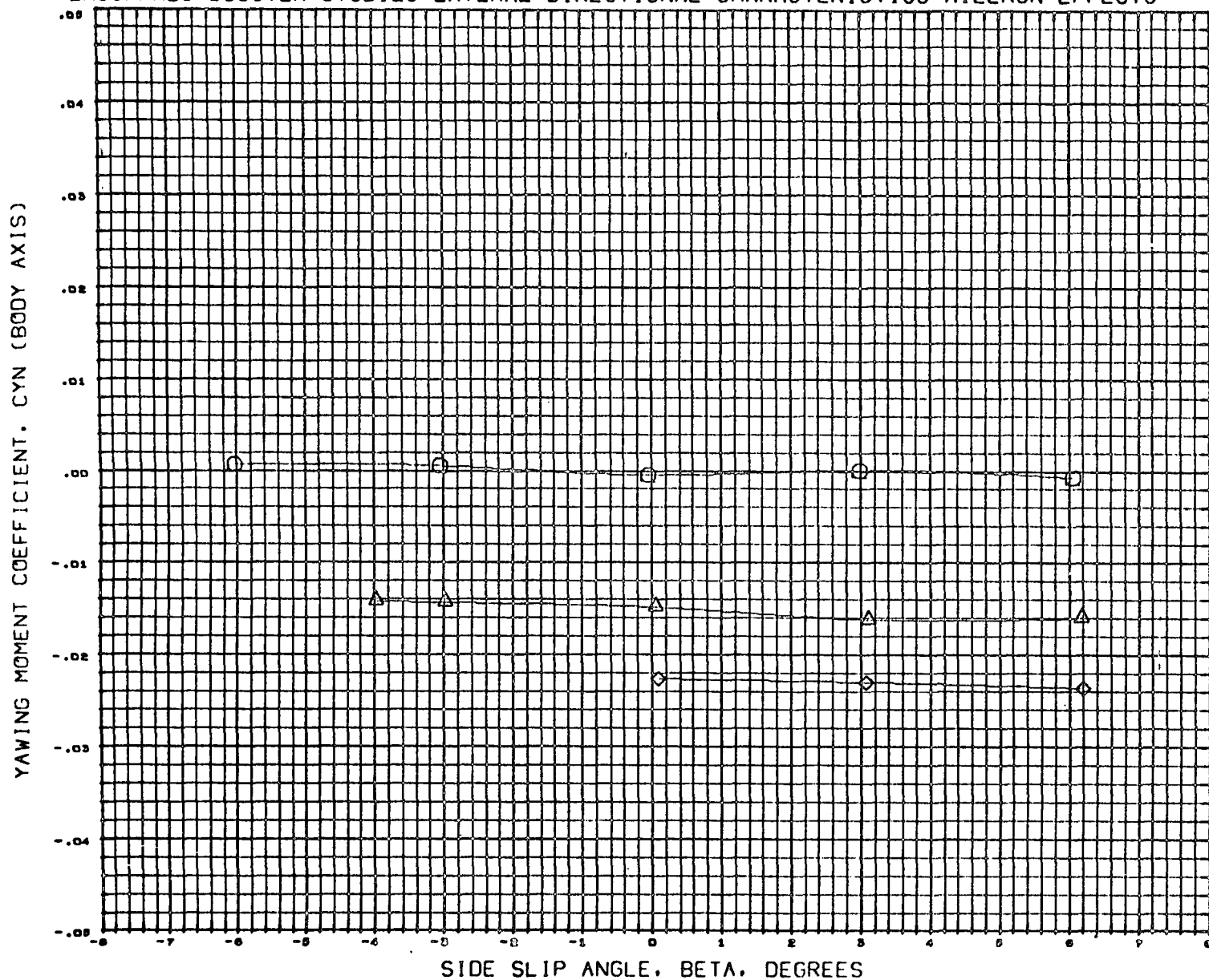
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(RN3002)	NRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.017	0.000	0.000	0.000	SREF	1.3950 80.FT.
(RN3030)	NRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.046	0.000	10.000	0.000	LREF	3.4530 FEET
(RN3042)	DATA NOT AVAILABLE FOR ALL CONDITIONS	0.122	0.000	20.000	0.000	BREF	3.4930 FEET
						XMRP	2.5930 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 1.122

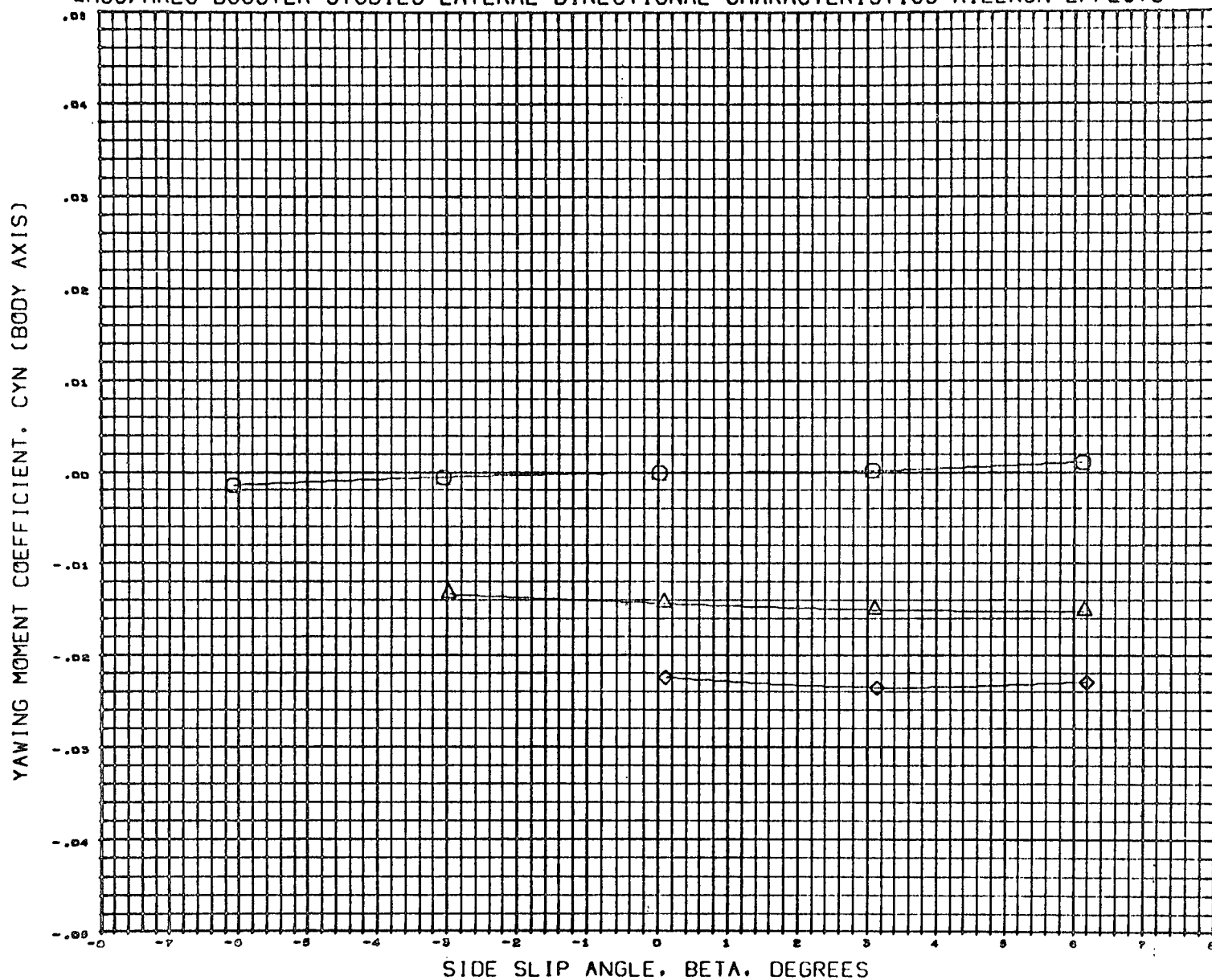
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(RN3002)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.017	0.000	0.000	0.000	SREF	1.5550 00.FT.
(RN3038)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.046	0.000	10.000	0.000	LREF	3.4530 FEET
(RN3042)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.122	0.000	20.000	0.000	BREF	3.4530 FEET
						XMRP	2.5050 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.099

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(RM3002)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.017	0.000	0.000	0.000	SREF	1.3990 SQ.FT.
(RM3030)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.046	0.000	10.000	0.000	LREF	3.4930 FEET
(RM3042)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.122	0.000	20.000	0.000	BREF	3.4930 FEET
						XMRP	2.5050 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.900

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS

YAWING MOMENT COEFFICIENT, CYN (BODY AXIS)

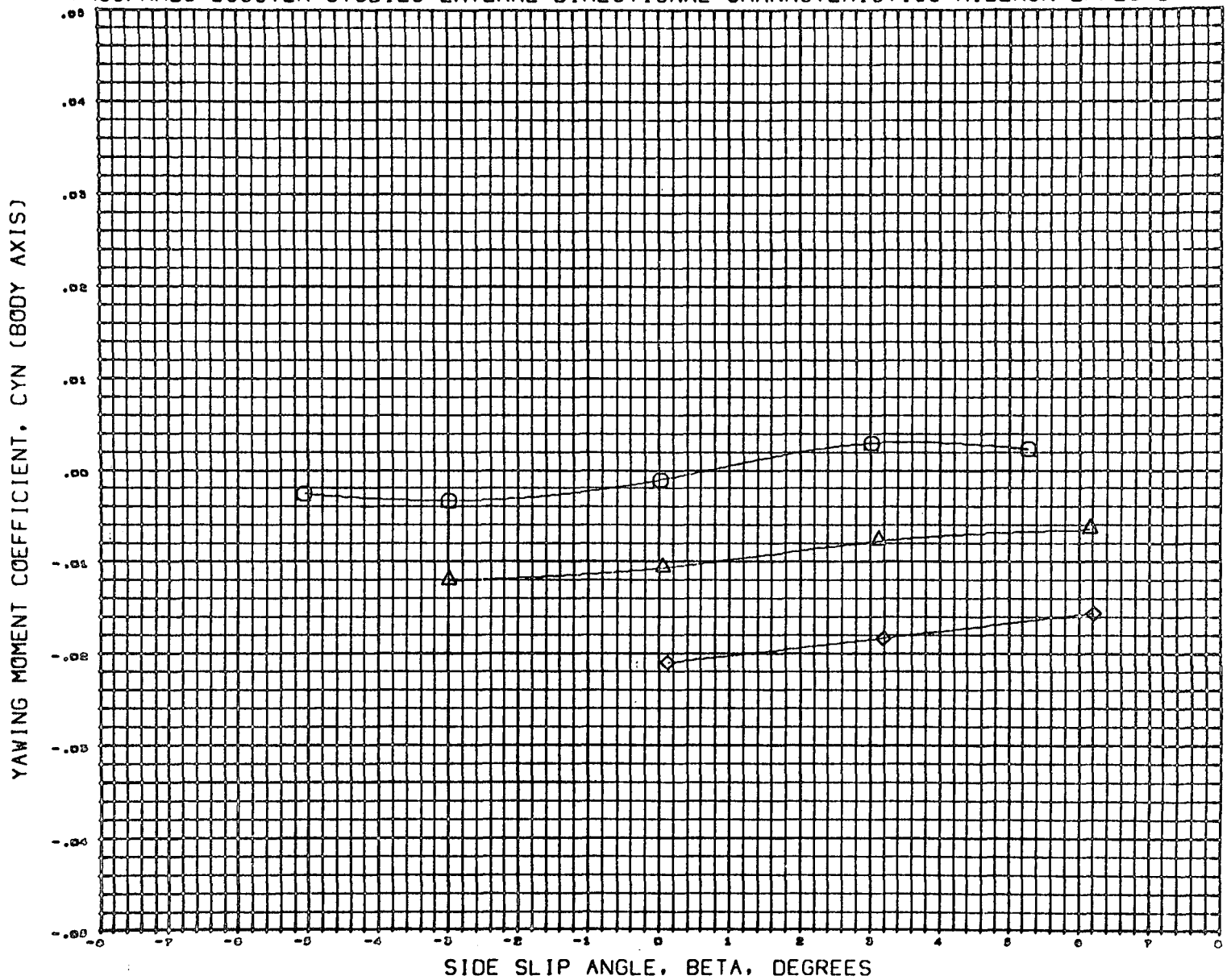


SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(RN3002)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.017	0.000	0.000	0.000	BREF	1.3550 DEG.PY.
(RN3036)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.046	0.000	10.000	0.000	LREF	3.4550 FEET
(RN3042)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.122	0.000	20.000	0.000	BREF	3.4550 FEET
						XMRP	2.9050 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.900

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS

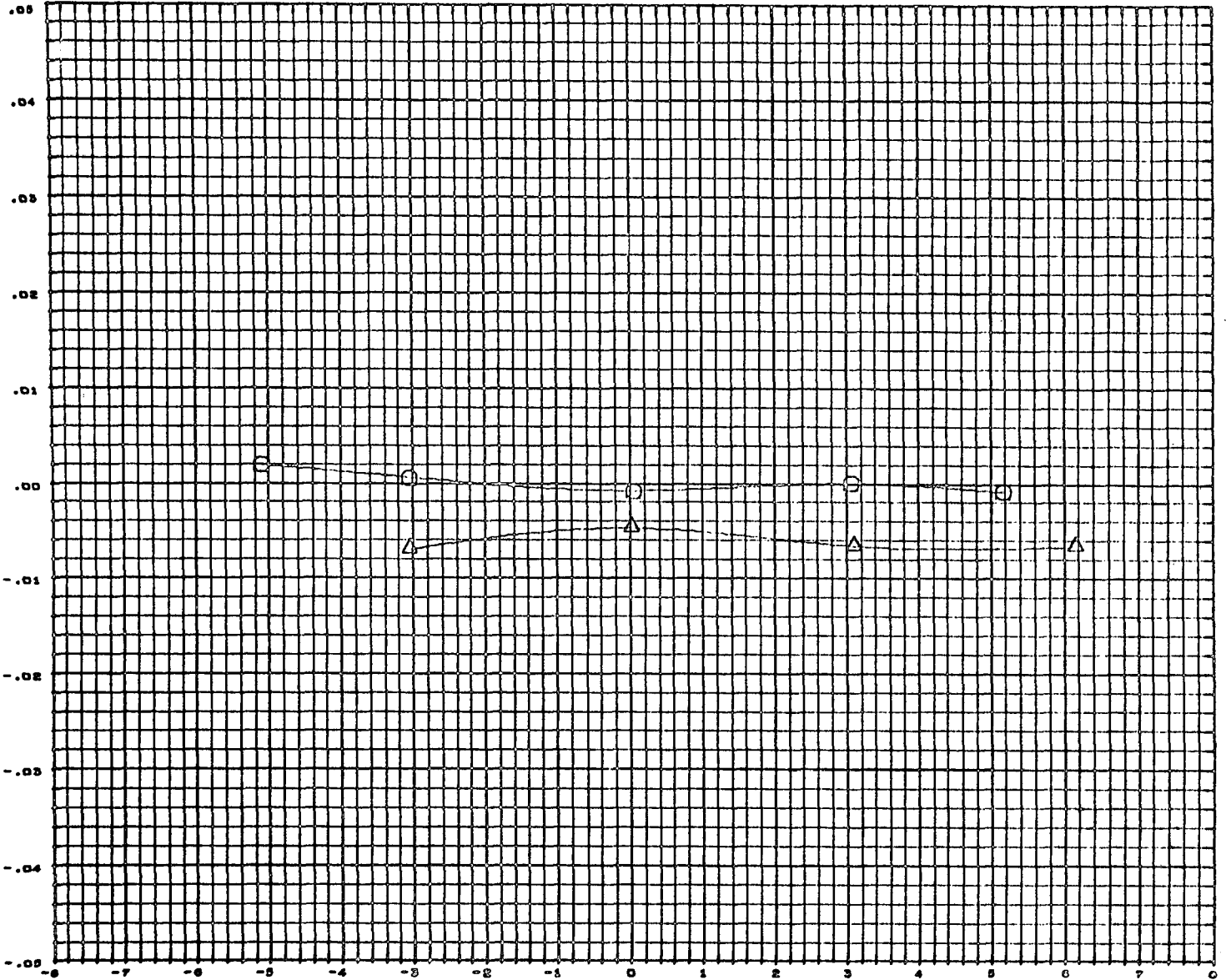


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(RNS002)	NORDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.017	0.000	0.000	0.000	SREF	1.3550 00.FT.
(RNS030)	NORDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.046	0.000	10.000	0.000	LREF	0.4530 FEET
(RNS048)	NORDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.122	0.000	20.000	0.000	SREF	0.4630 FEET
						XMRP	0.9090 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0190 SCALE

MACH 5.001

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS

YAWING MOMENT COEFFICIENT, CYN (BODY AXIS)

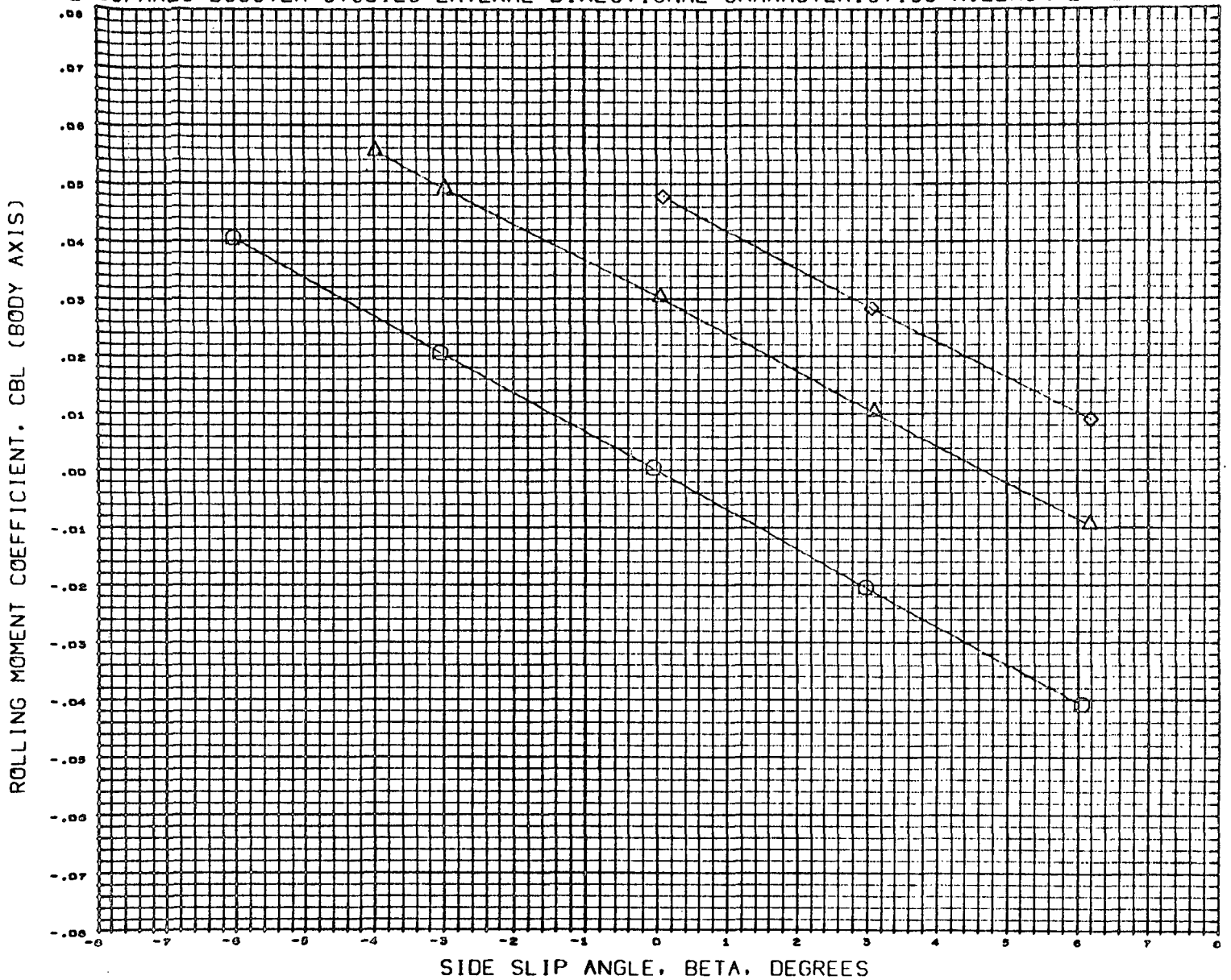


SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(RN3002)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.017	0.000	0.000	0.000	SREF	1.3550 CO.FY.
(RN3036)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.046	0.000	10.000	0.000	LREF	0.4930 FEET
(RN3042)	DATA NOT AVAILABLE FOR ALL CONDITIONS	0.122	0.000	20.000	0.000	BREF	0.4530 FEET
						XMRP	0.3950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 1.122

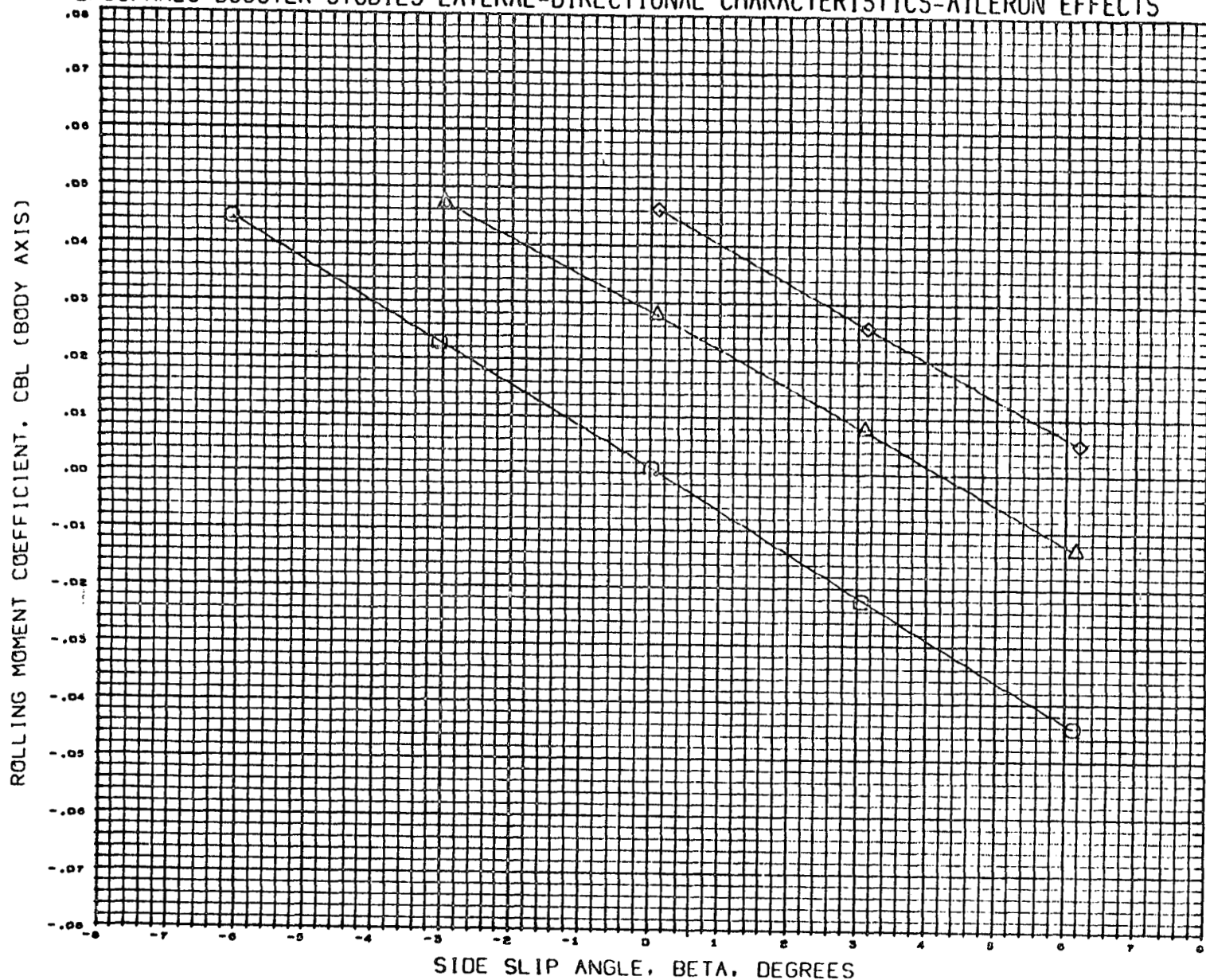
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS






DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(R3002)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.017	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(R3030)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.046	0.000	10.000	0.000	LREF	3.4530 FEET
(R3042)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.122	0.000	20.000	0.000	BREF	3.4530 FEET
						XMRF	2.5930 FEET
						YMRF	0.0000 FEET
						ZMRF	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.609

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS



DATA SET SYMBOL

(RN3002) 
 (RN3038) 
 (RN3042) 

CONFIGURATION DESCRIPTION

NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1
 NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1
 NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1

ALPHA

ELEVTR

AILRON

RUDDER

REFERENCE INFORMATION

0.017

0.000

0.000

0.000

SREF

1.3550 SQ. FT.

0.046

0.000

10.000

0.000

LREF

3.4530 FEET

0.122

0.000

20.000

0.000

BREF

3.4530 FEET

XMRP

2.9950 FEET

YMRP

0.0000 FEET

ZMRP

0.0167 FEET

SCALE

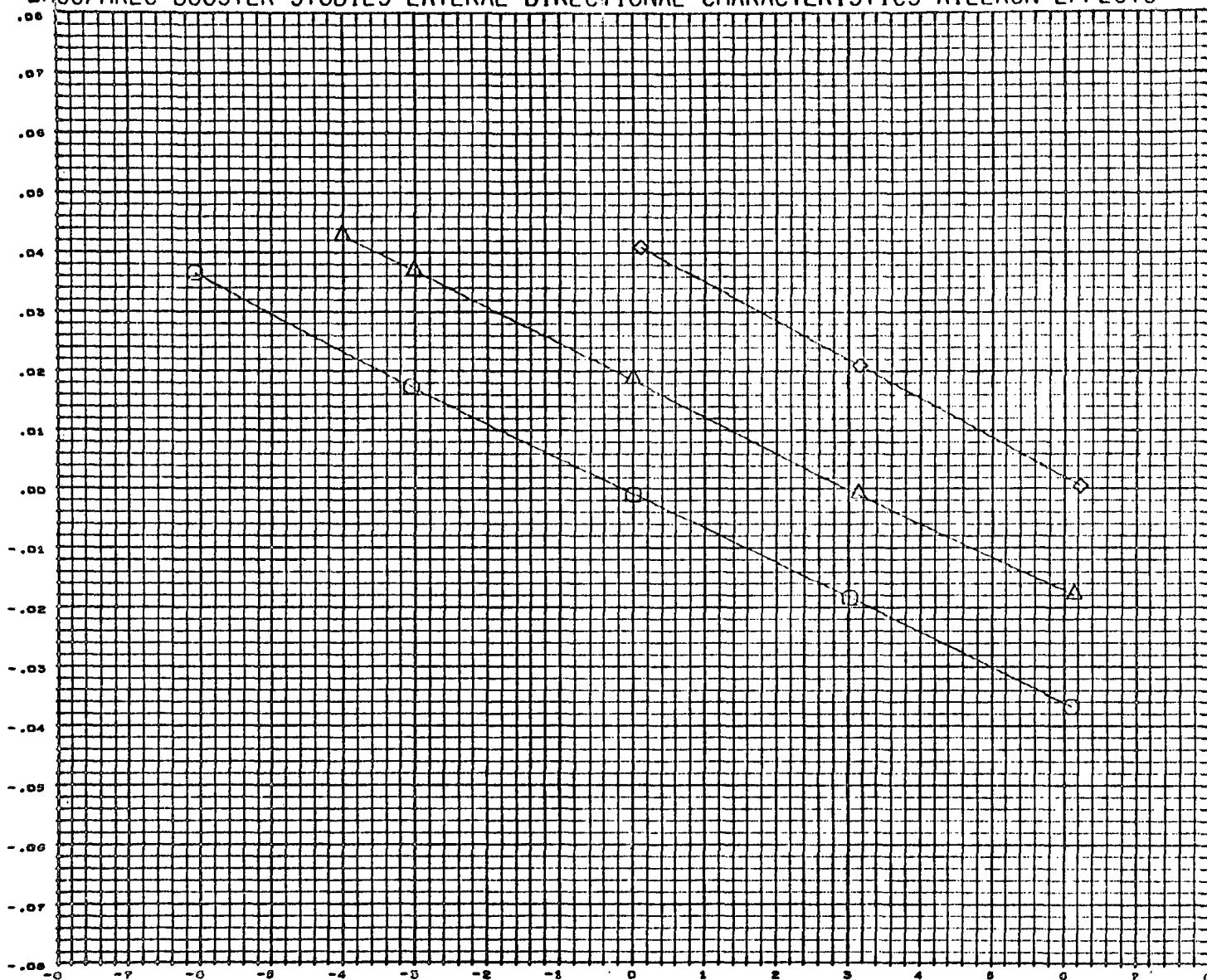
0.0150 SCALE

MACH

0.800

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)



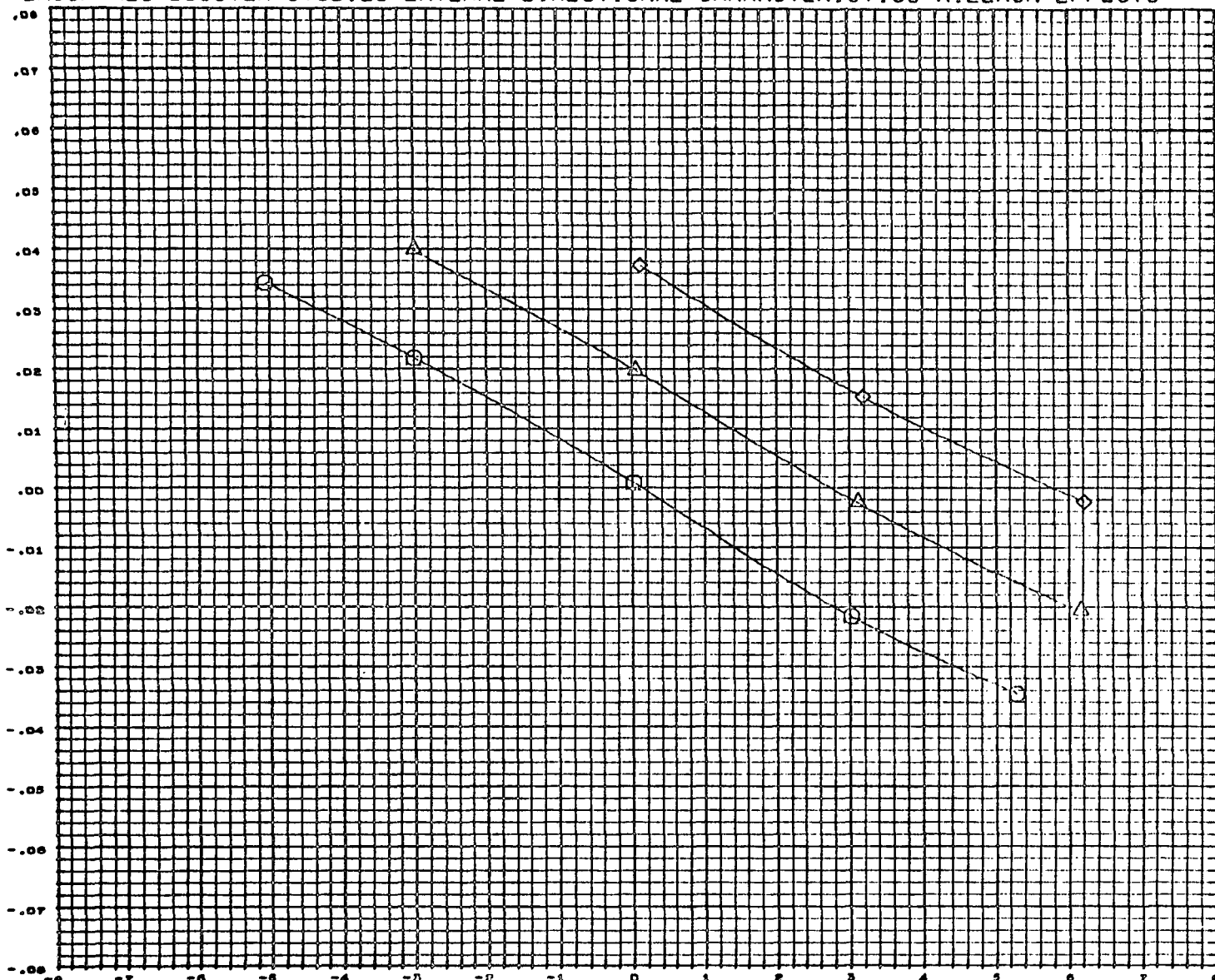
SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(RNS002)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.017	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(RNS030)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.046	0.000	10.000	0.000	LREF	3.4530 FEET
(RNS042)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.122	0.000	20.000	0.000	BREF	3.4530 FEET
						XMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.000

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)



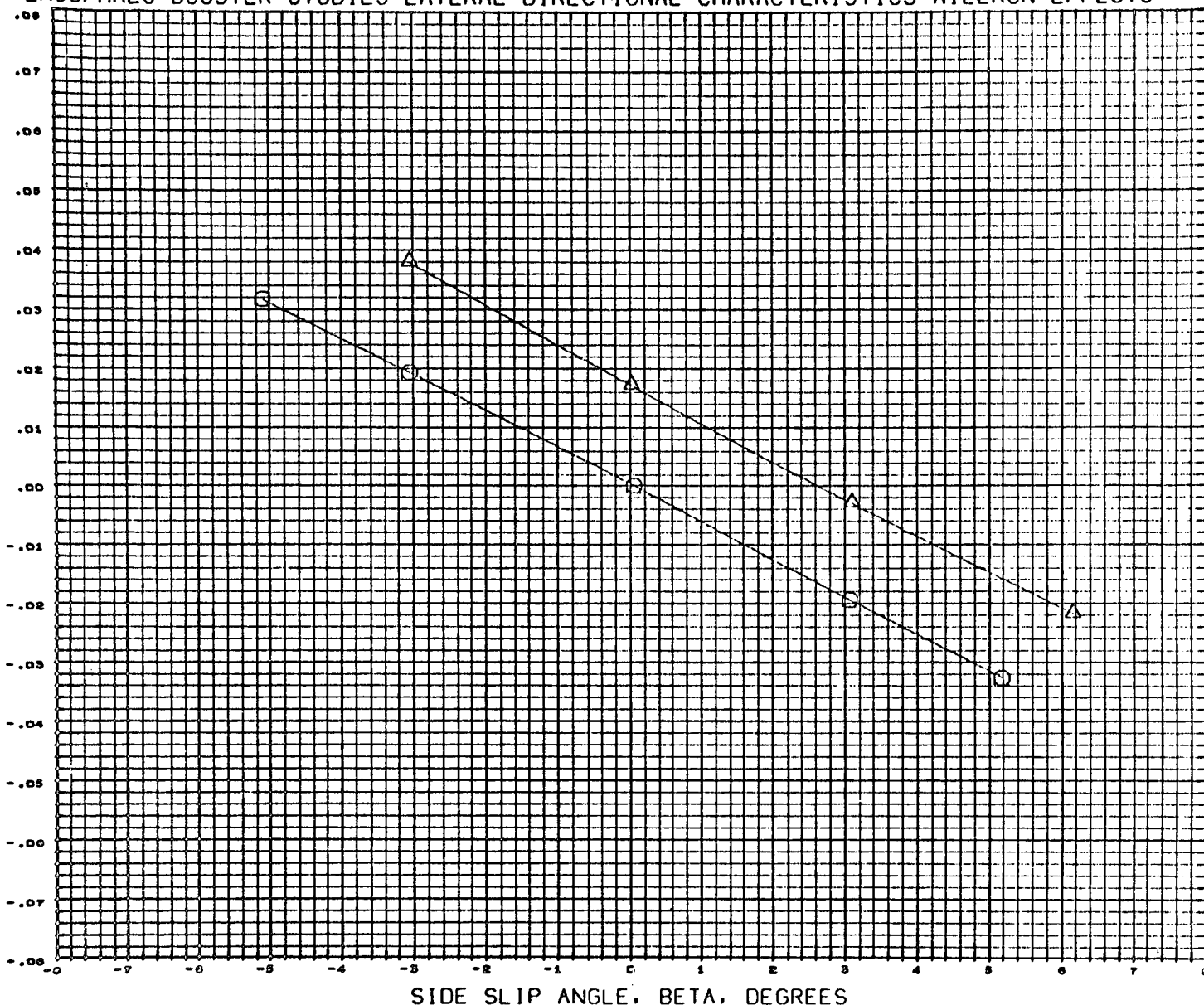
SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(R)3002	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.017	0.000	0.000	0.000	SREF	1.3550 90.FT.
(R)3036	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.046	0.000	10.000	0.000	LREF	3.4530 FEET
(R)3042	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.122	0.000	20.000	0.000	BREF	3.4530 FEET
						XMRP	2.9990 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 1.001

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)

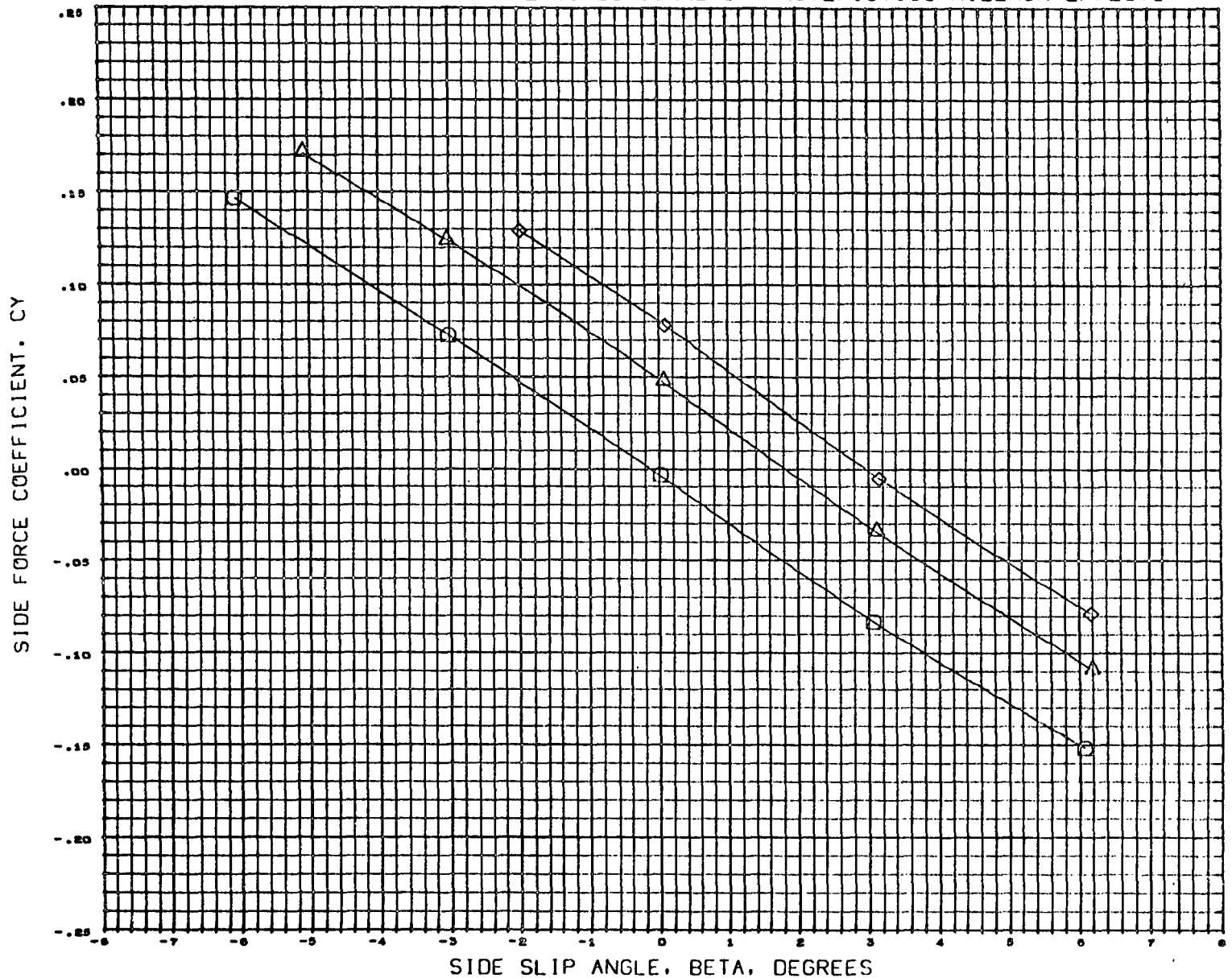


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(RN3002)	NBRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.017	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3030)	NBRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.046	0.000	10.000	0.000	LREF	3.4530 FEET
(RN3042)	DATA NOT AVAILABLE FOR ALL CONDITIONS	0.122	0.000	20.000	0.000	BREF	3.4530 FEET
						XMRF	2.9950 FEET
						YMRF	0.0000 FEET
						ZMRF	0.0187 FEET
						SCALE	0.0150 SCALE

RACH

1.122

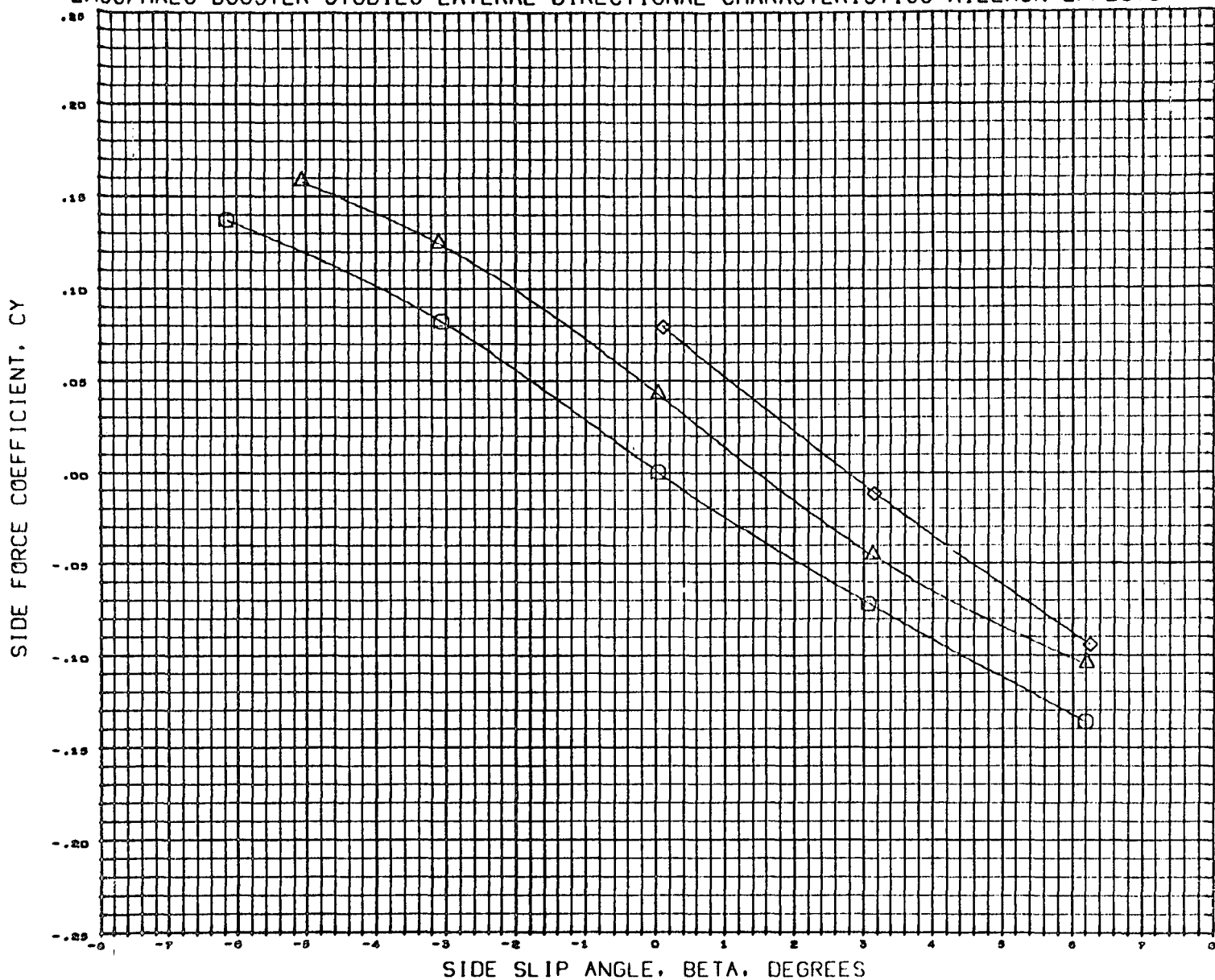
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(RNS003)	NBRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.135	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RNS039)	NBRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.187	0.000	10.000	0.000	LREF	3.4530 FEET
(RNS043)	NBRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.214	0.000	20.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.700

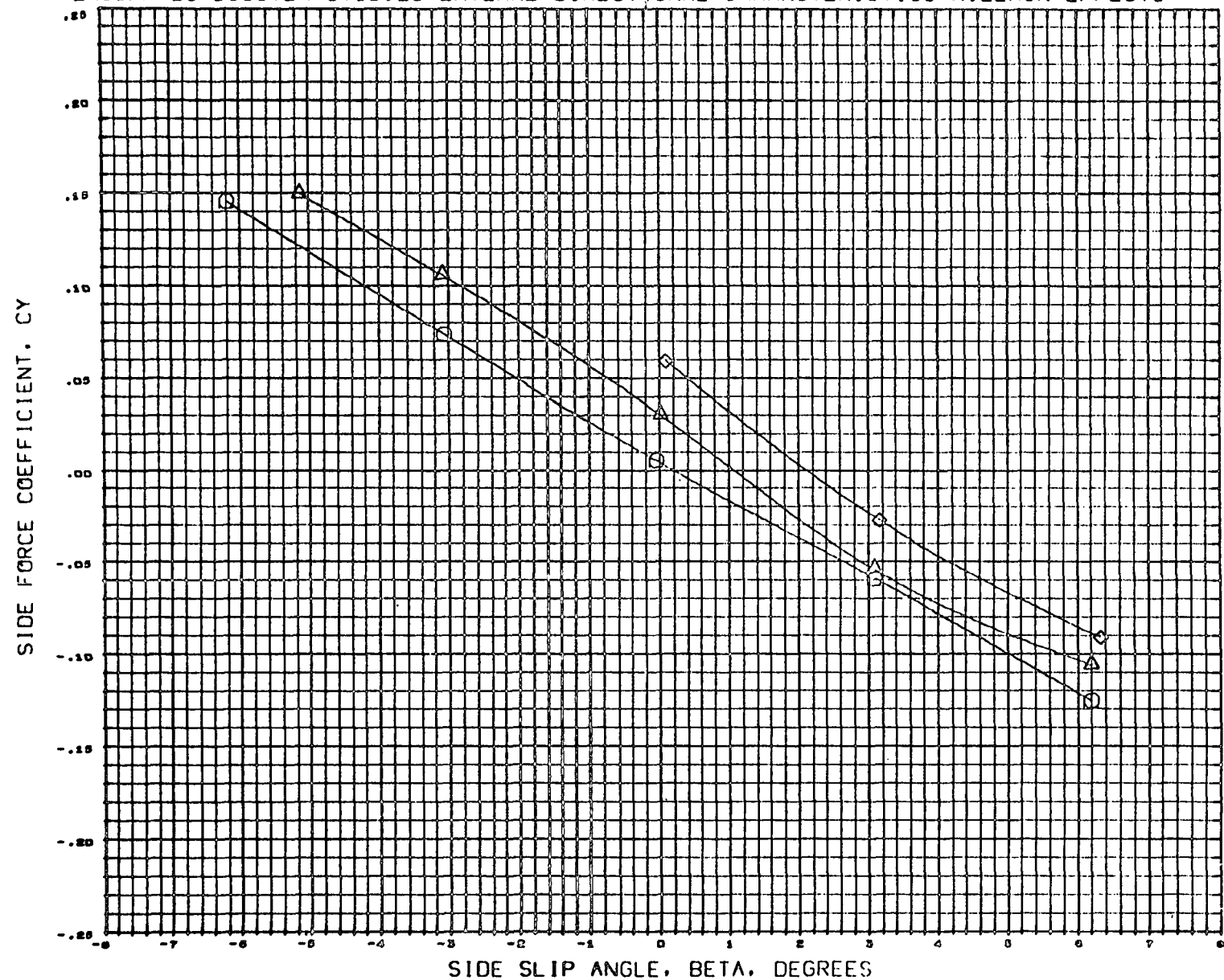
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(RNS003)	NBRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.135	0.000	0.000	0.000	SREF	1.3550 30.FT.
(RNS030)	NBRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.107	0.000	10.000	0.000	LREF	3.4530 FEET
(RNS049)	NBRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.214	0.000	20.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.800

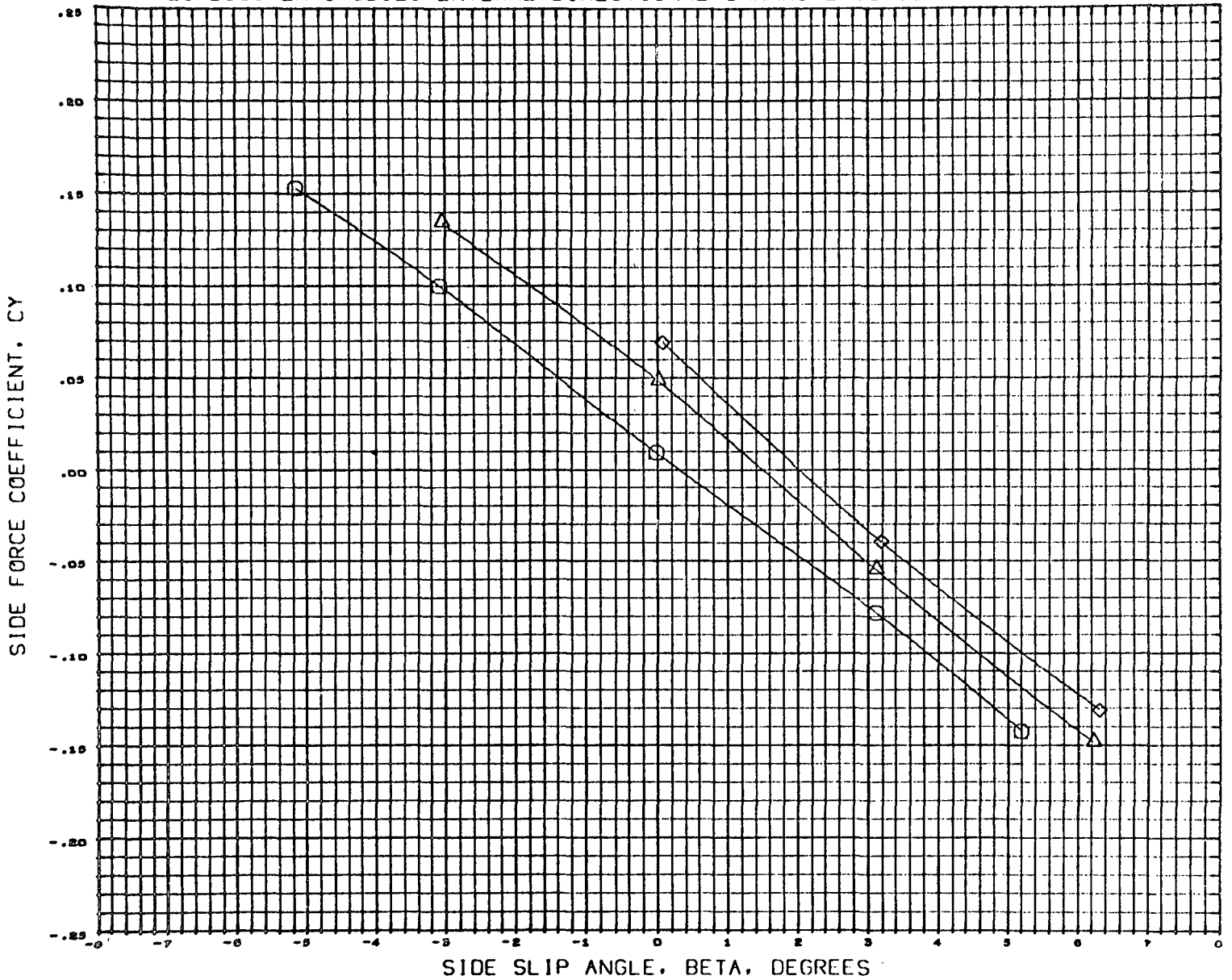
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(RN3003)	○	NBRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.135	0.000	0.000	0.000	SREF	1.3550 DEG.FT.
(RN3039)	△	NBRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.167	0.000	10.000	0.000	LREF	3.4550 FEET
(RN3043)	◇	NBRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.214	0.000	20.000	0.000	SREF	3.4550 FEET
							XMRP	2.9950 FEET
							YMRP	0.0000 FEET
							ZMRP	0.0167 FEET
							SCALE	0.0150 SCALE

MACH 0.904

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS

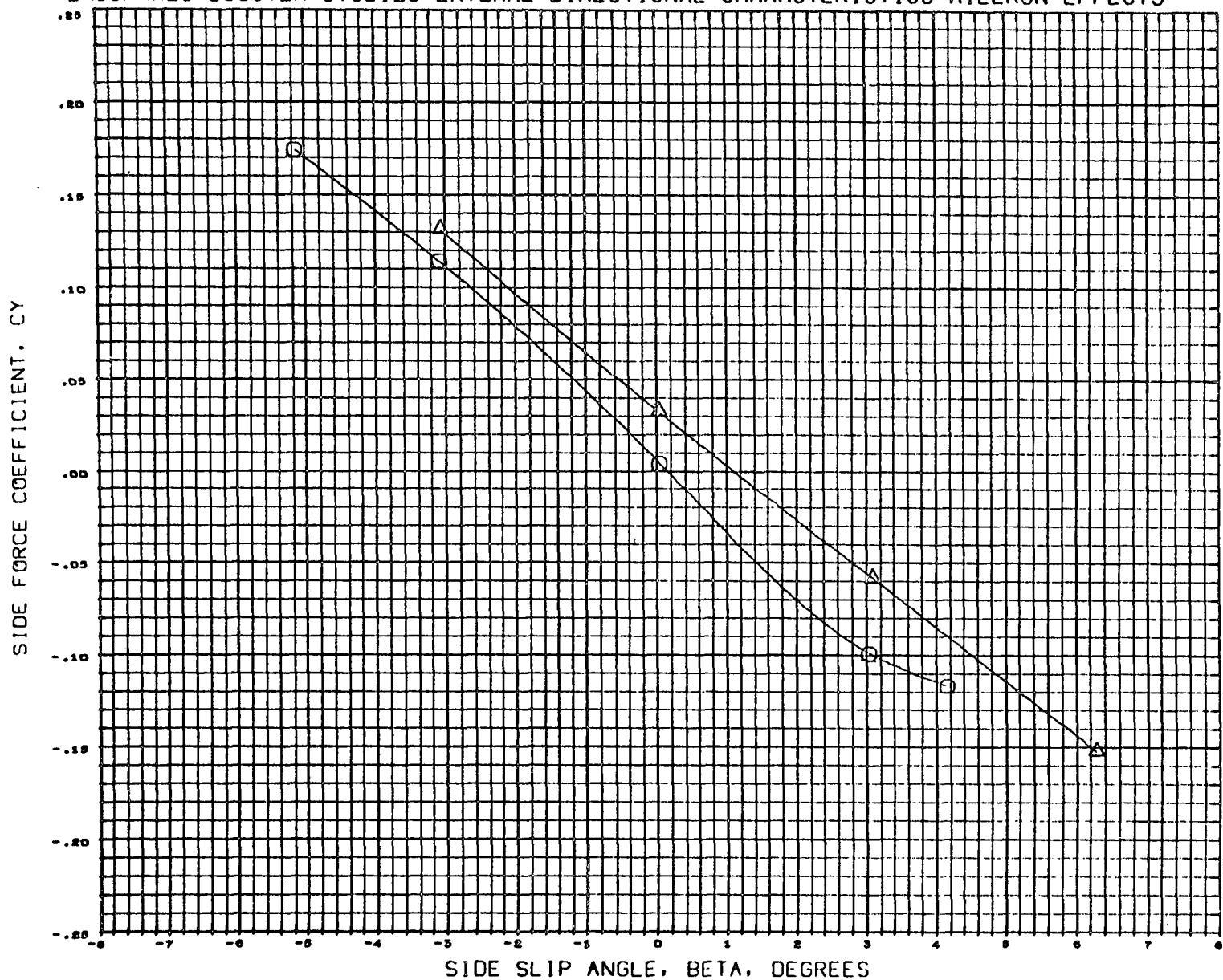


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(RN3003)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.135	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3030)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.167	0.000	10.000	0.000	LREF	3.4530 FEET
(RN3043)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.214	0.000	20.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

PACK

1.001

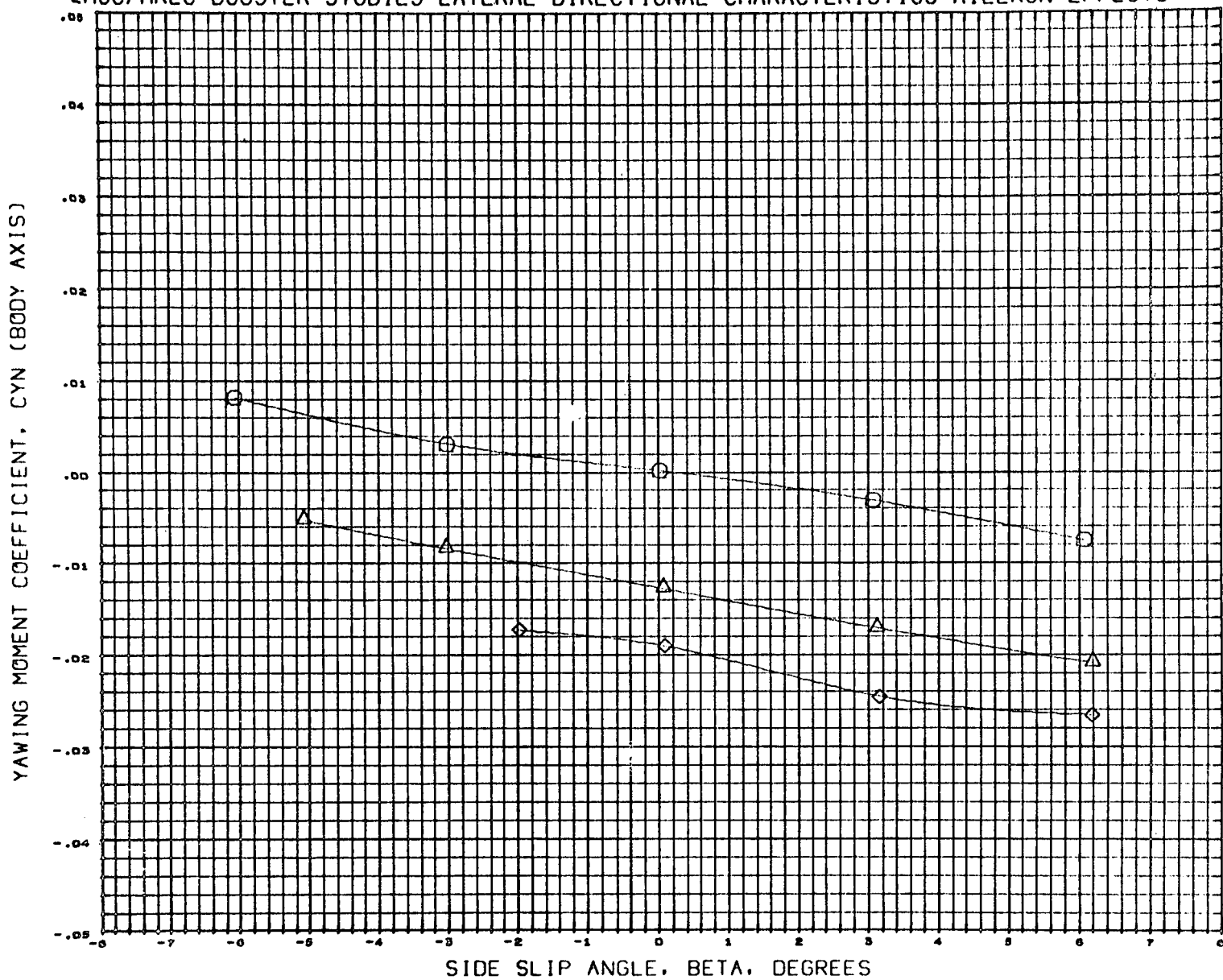
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(RN3003)	NBRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	6.135	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(RN3039)	NBRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	6.167	0.000	10.000	0.000	LREF	3.4530 FEET
(RN3043)	DATA NOT AVAILABLE FOR ALL CONDITIONS	6.214	0.000	20.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 1.124

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS

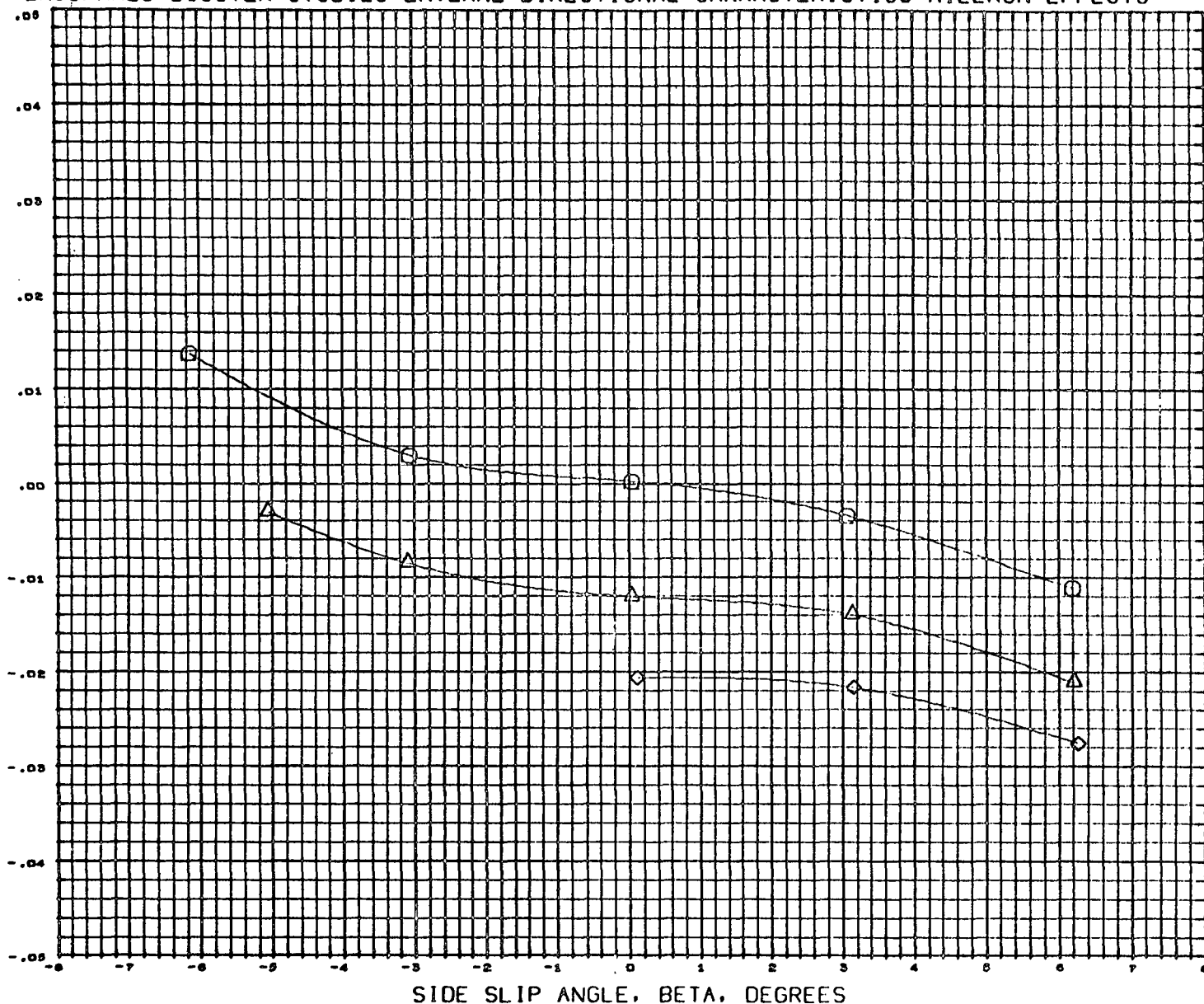


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(RN3003)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.135	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3030)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.167	0.000	10.000	0.000	LREF	3.4530 FEET
(RN3043)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.214	0.000	20.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0190 SCALE

MACH 0.700

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS

YAWING MOMENT COEFFICIENT, CYN (BODY AXIS)

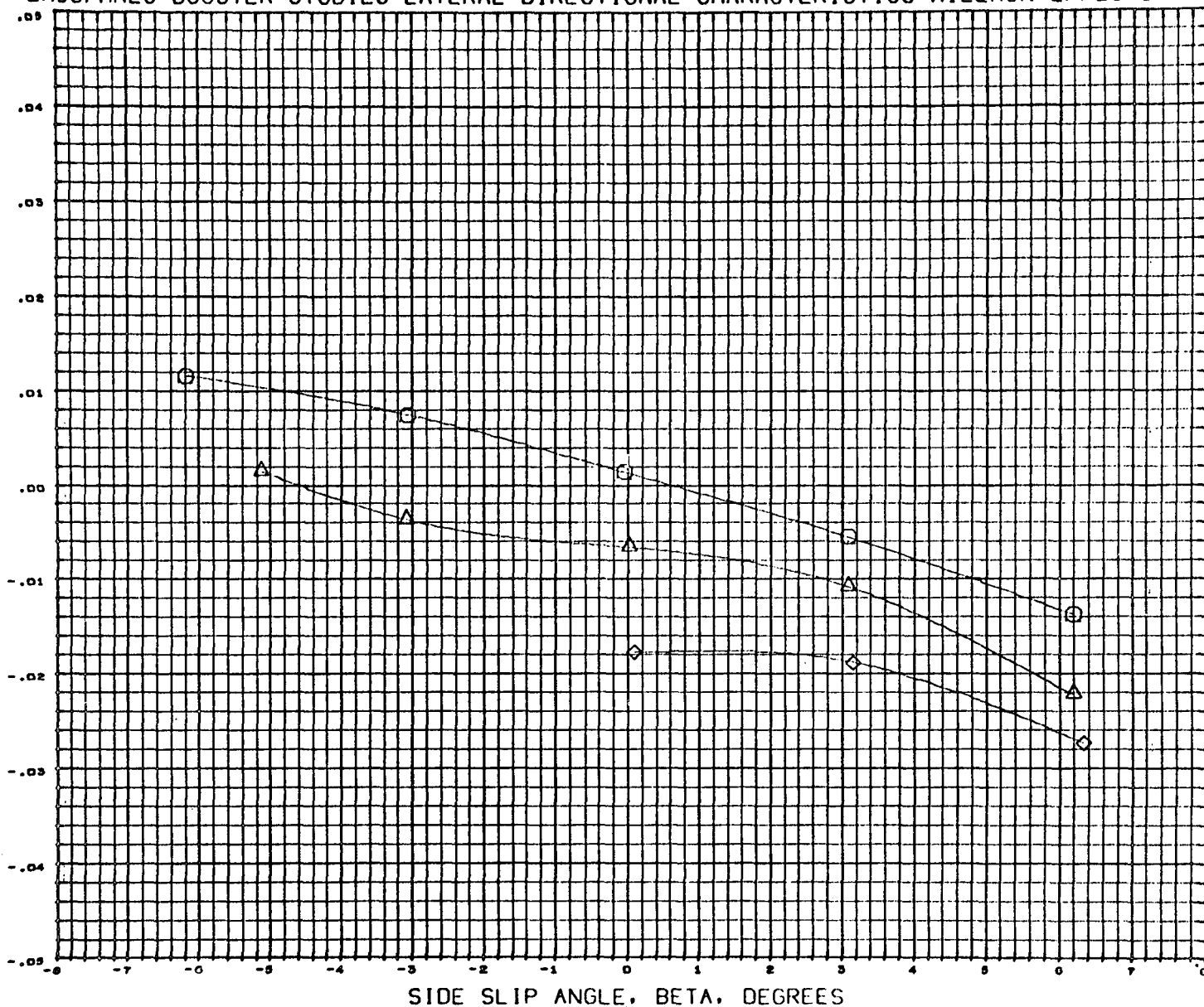


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(R3003)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.135	0.000	0.000	0.000	GREF	1.3550 SQ.FT.
(R3039)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.187	0.000	10.000	0.000	LREF	3.4530 FEET
(R3043)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.214	0.000	20.000	0.000	BREF	3.4530 FEET
						XMRP	2.9050 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.000

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS

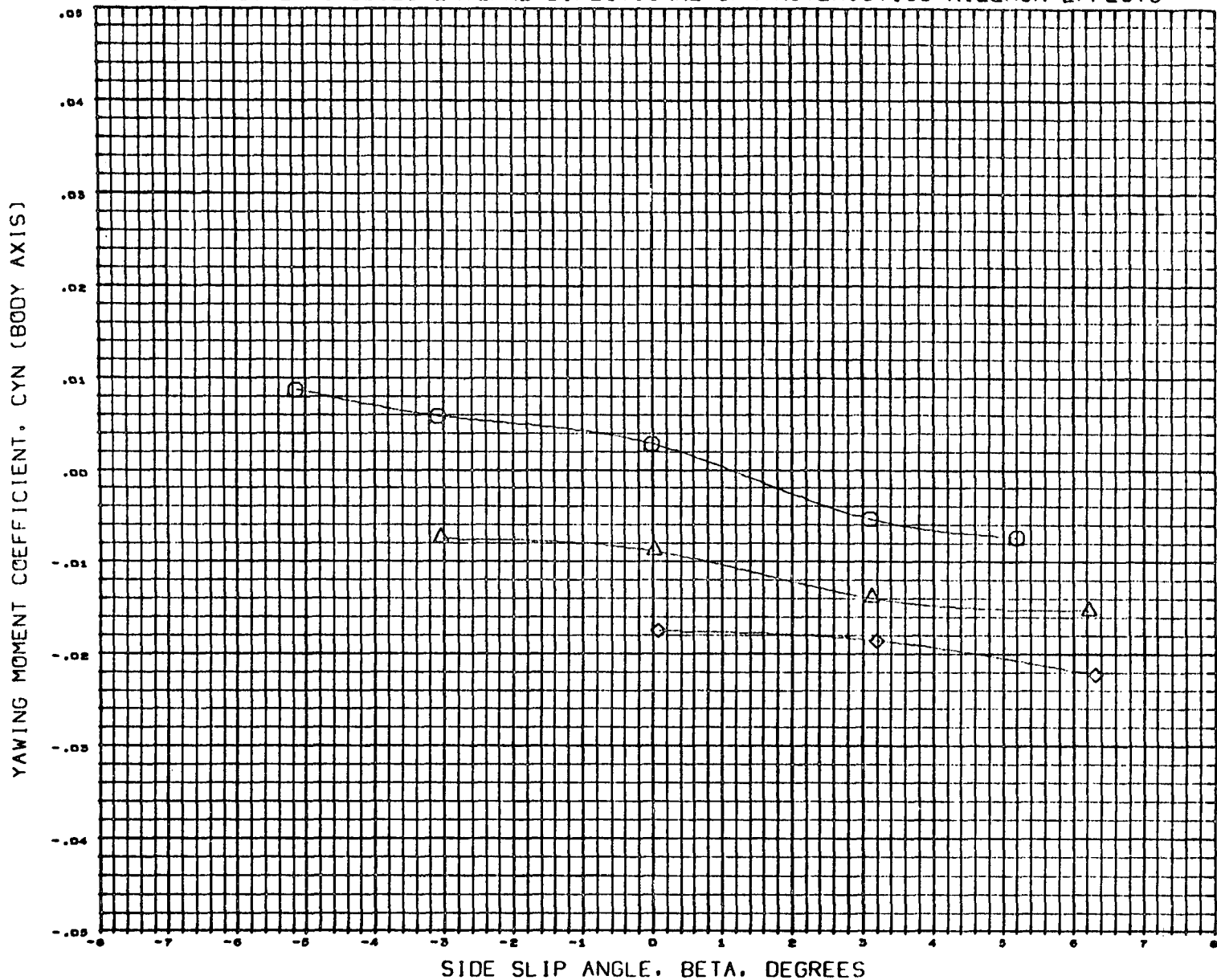
YAWING MOMENT COEFFICIENT, CYN (BODY AXIS)



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(RN3003)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.135	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3030)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.187	0.000	10.000	0.000	LREF	3.4530 FEET
(RN3043)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.214	0.000	20.000	0.000	BREF	3.4930 FEET
						XMRP	8.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.904

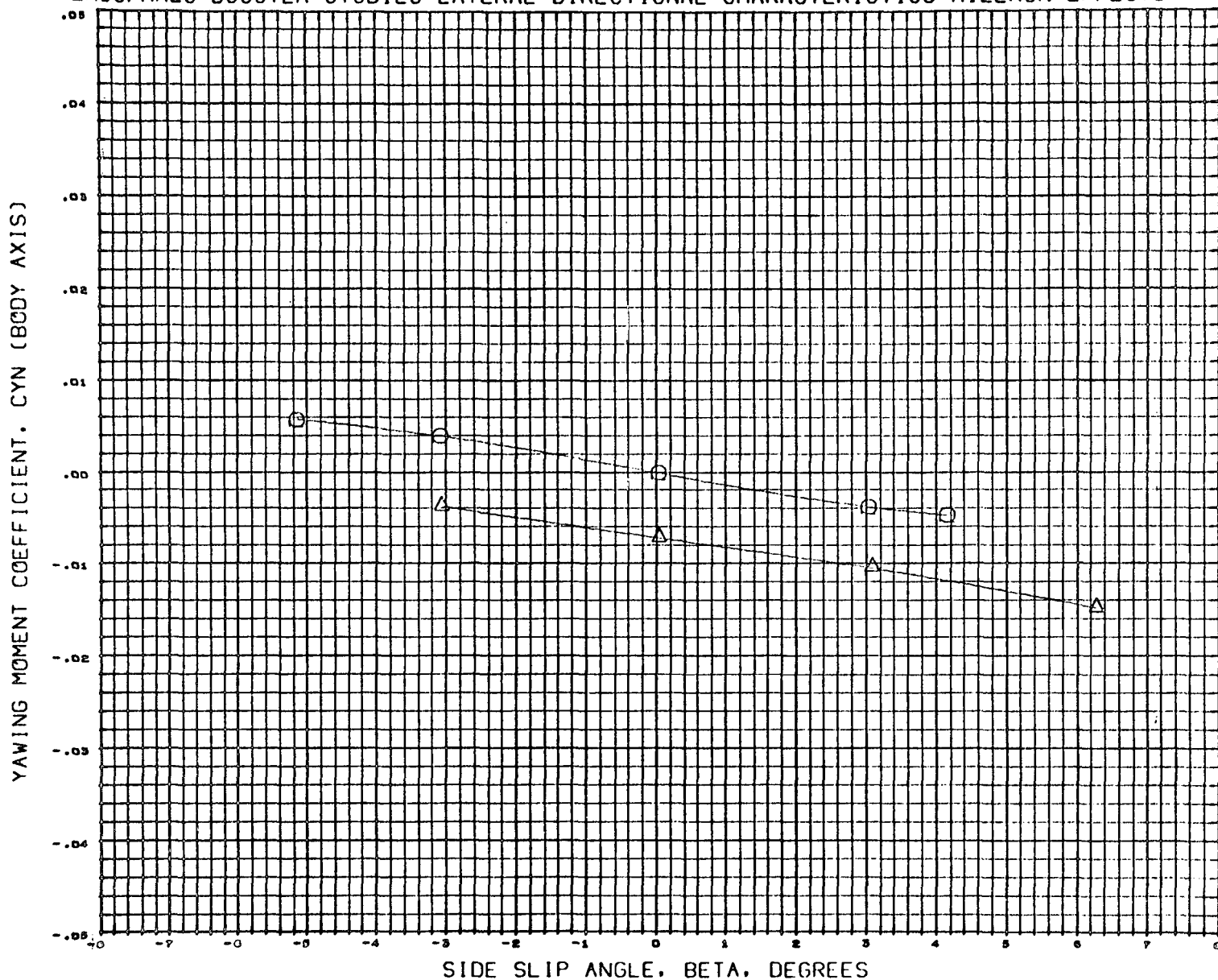
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(RN3003)	N8RDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.135	0.000	0.000	0.000	SREF	1.3550 80.FT.
(RN3039)	N8RDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.187	0.000	10.000	0.000	LREF	3.4530 FEET
(RN3043)	N8RDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.214	0.000	20.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 1.001

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS



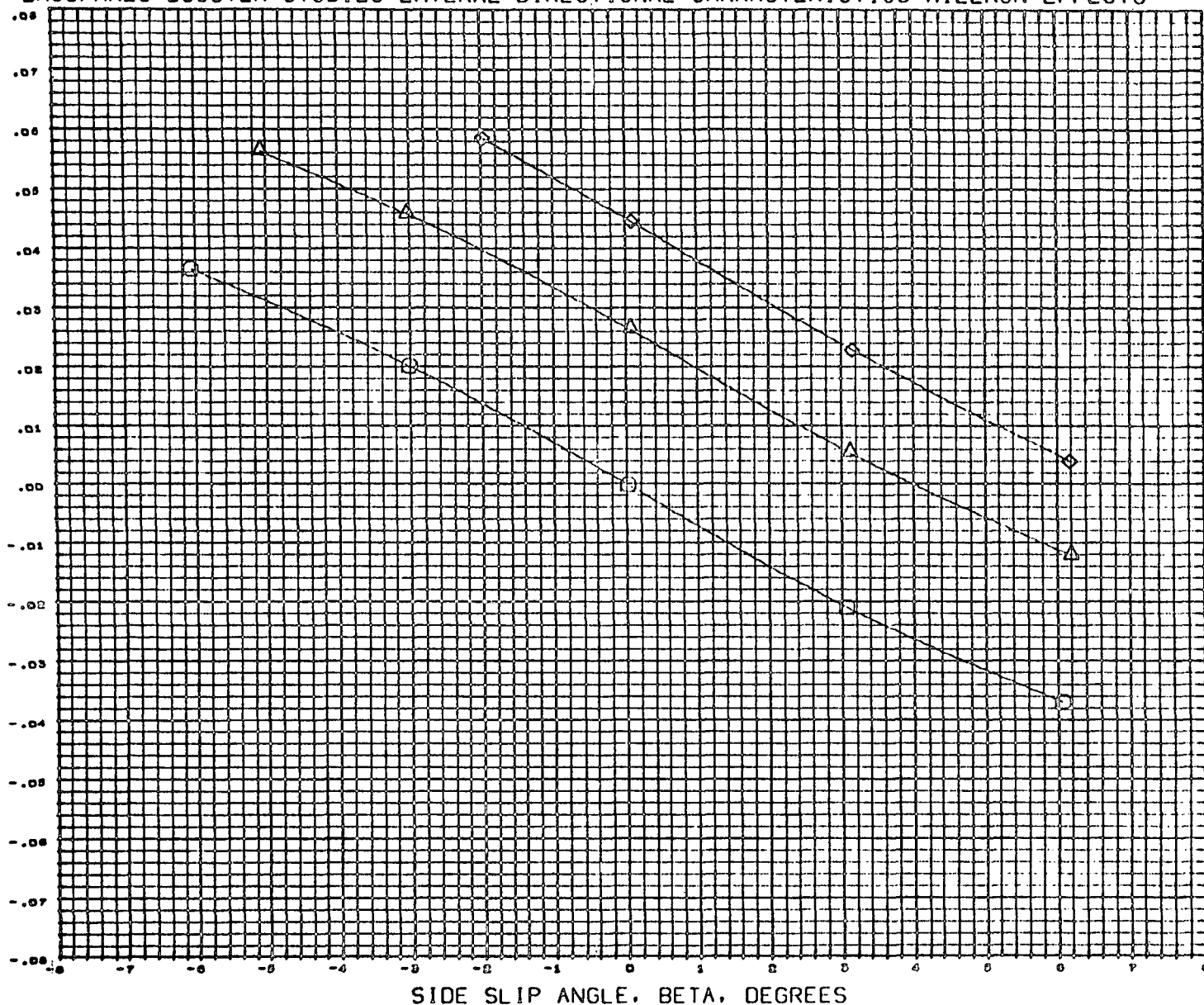
DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(RN3003)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.135	0.000	0.000	0.000	SREF	1.3550 50.FT.
(RN3030)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.167	0.000	10.000	0.000	LREF	3.4530 FEET
(RN3043)	DATA NOT AVAILABLE FOR ALL CONDITIONS	6.214	0.000	20.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH

3.124

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)

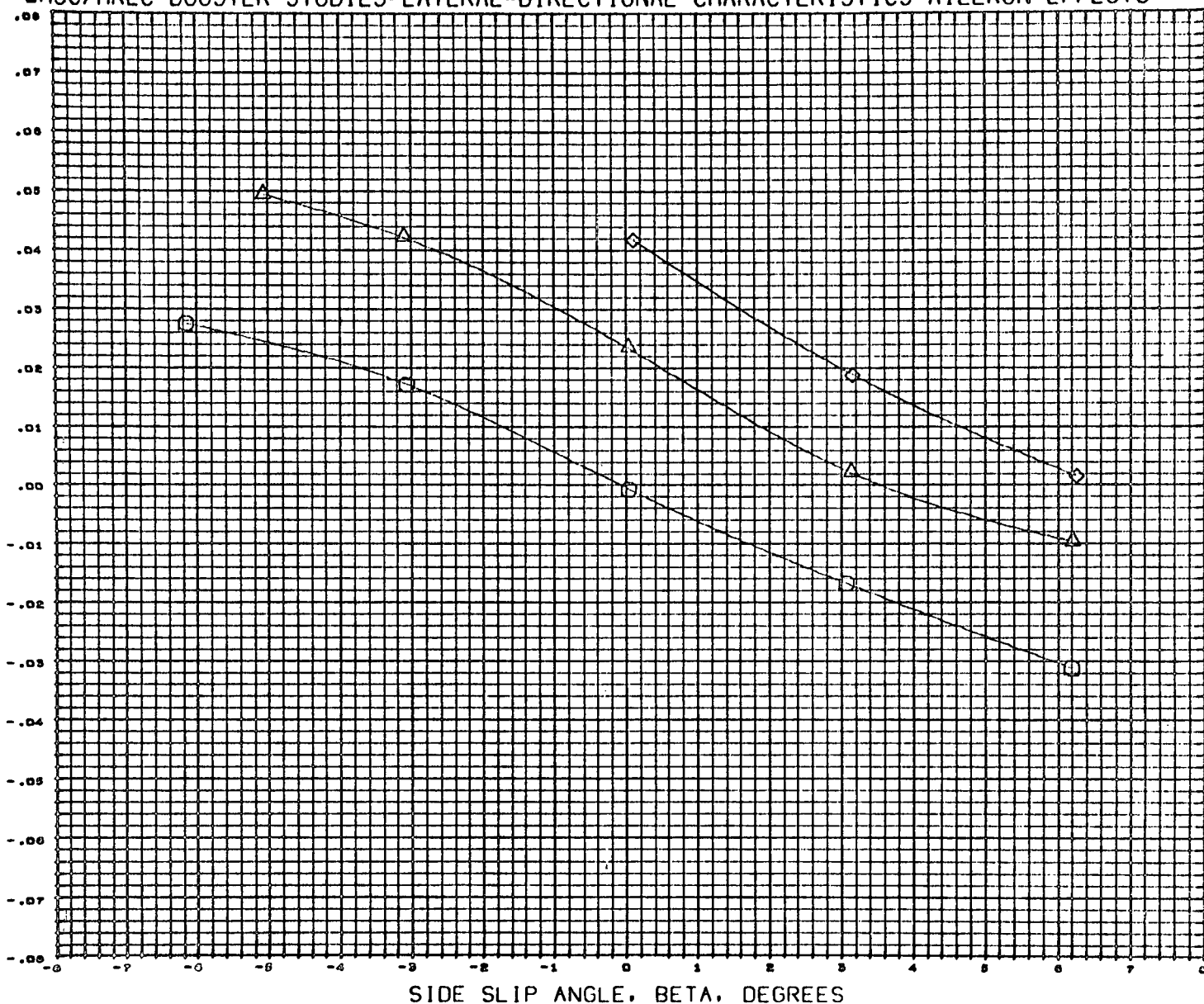


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(RN3003)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.135	0.000	0.000	0.000	SREF	1.3950 SQ.FT.
(RN3039)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.167	0.000	10.000	0.000	LREF	3.4530 FEET
(RN3043)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.214	0.000	20.000	0.000	BREF	3.4530 FEET
						XMRP	2.9050 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0107 FEET
						SCALE	0.0150 SCALE

MACH 0.700

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)

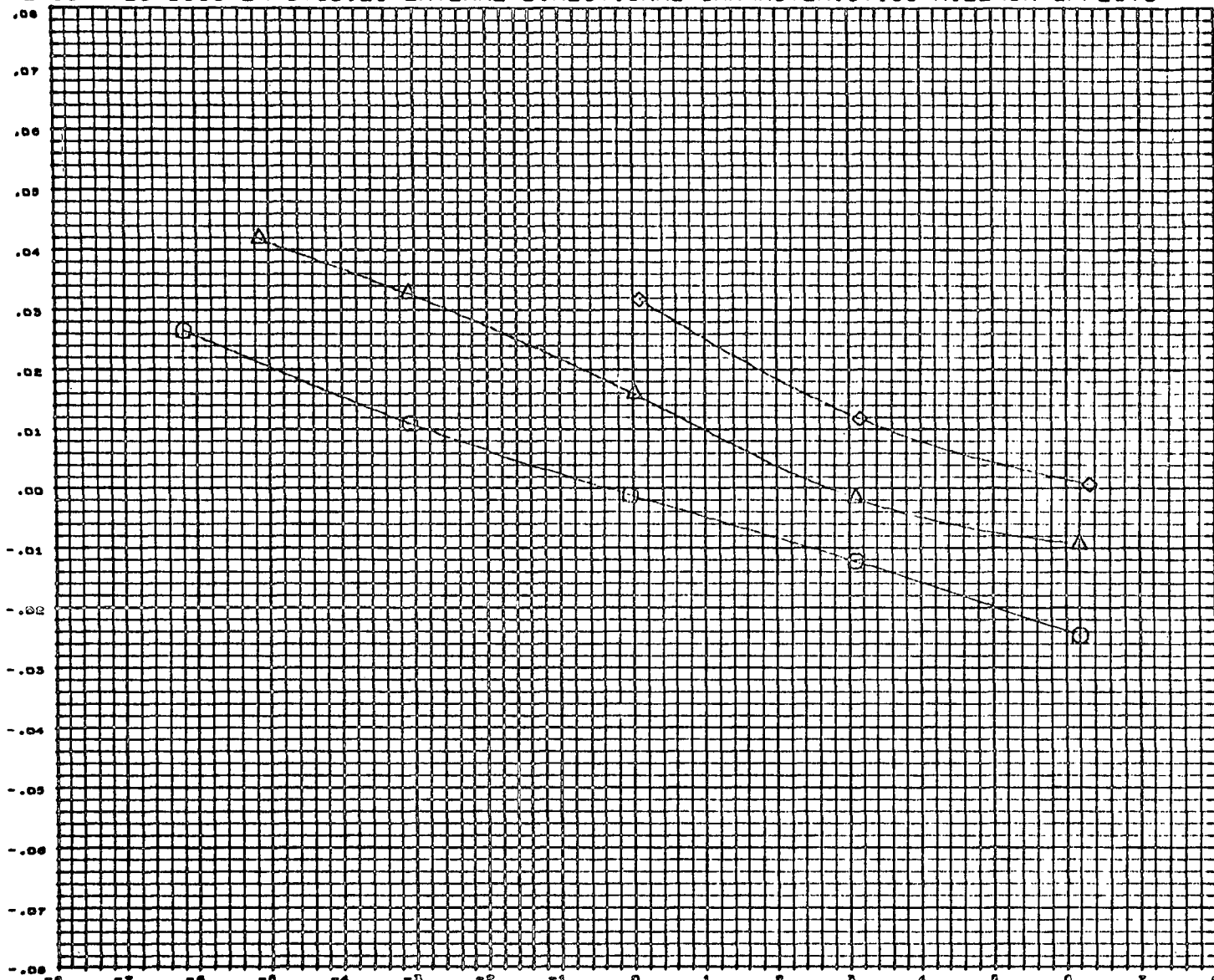


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(RN3003)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.135	0.000	0.000	0.000	SREF	1.3550 DD.FT.
(RN3039)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.187	0.000	10.000	0.000	LREF	3.4530 FEET
(RN3043)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.214	0.000	20.000	0.000	BREF	3.4530 FEET
						XMRP	2.9050 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.000

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)

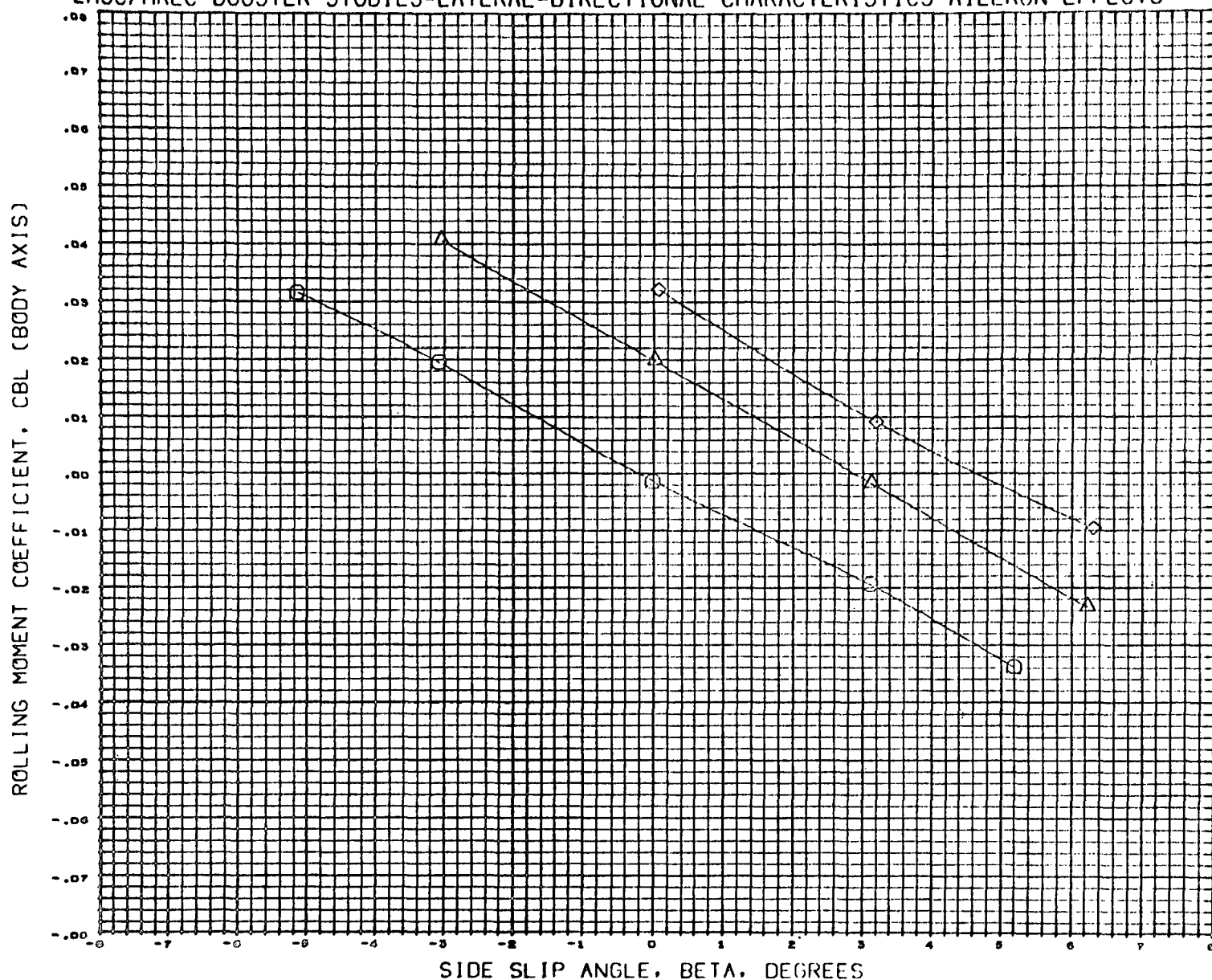


SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(R3003)	NSRDC-3210, MSFC/LMSC BOOSTER 81C2F2H1V1	8.135	0.000	0.000	0.000	SREF	1.3550 80. FT.
(R3039)	NSRDC-3210, MSFC/LMSC BOOSTER 81C2F2H1V1	8.167	0.000	10.000	0.000	LREF	3.4530 FEET
(R3043)	NSRDC-3210, MSFC/LMSC BOOSTER 81C2F2H1V1	8.214	0.000	20.000	0.000	BREF	3.4530 FEET
						XMRP	2.9850 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0107 FEET
						SCALE	0.0150 SCALE

MACH 0.904

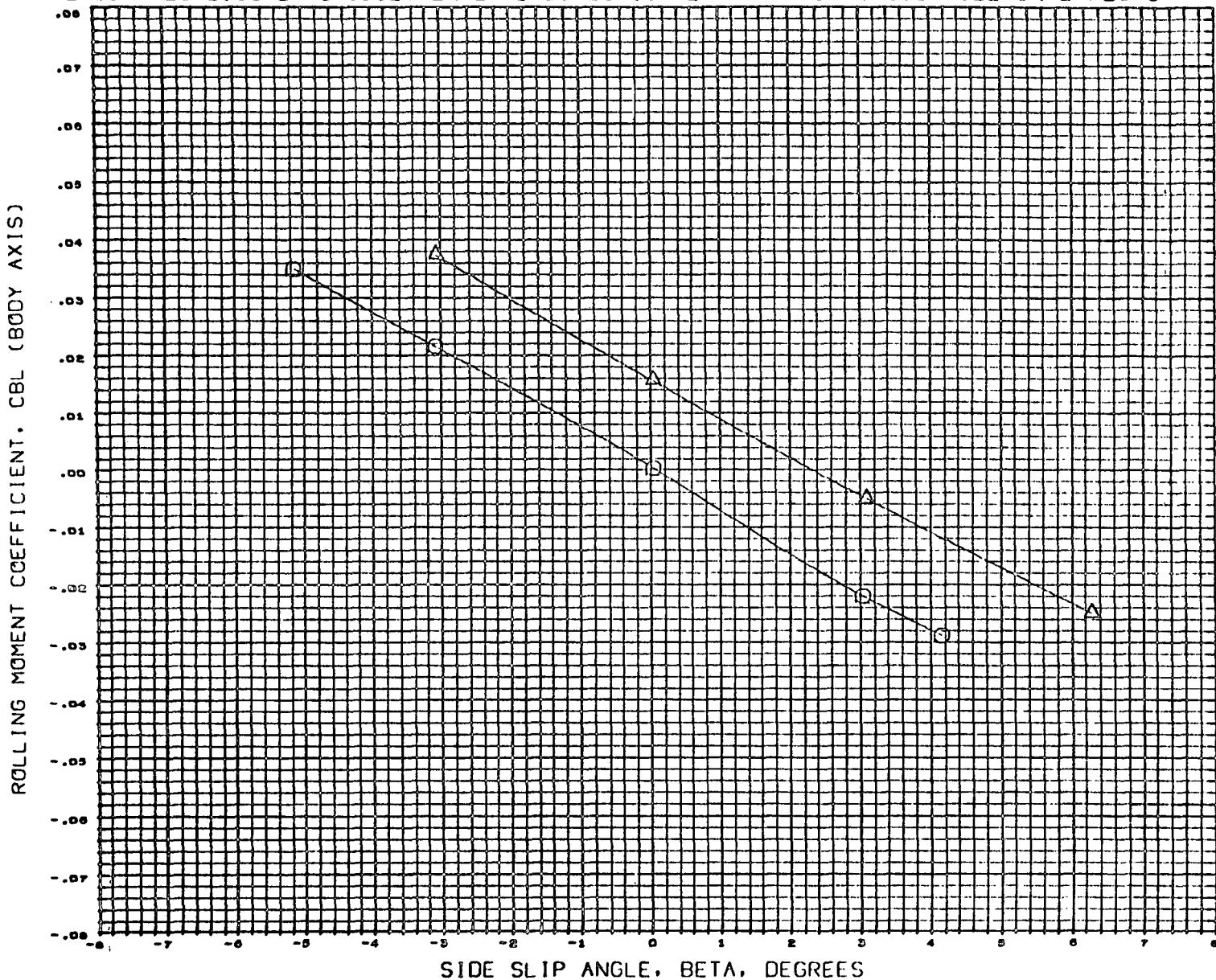
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(RN3003)	○	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	6.135	0.000	0.000	0.000	SREF	1.3990 SQ. FT.
(RN3030)	△	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	6.187	0.000	10.000	0.000	LREF	3.4530 FEET
(RN3043)	◇	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	6.214	0.000	20.000	0.000	BREF	3.4530 FEET
							XMRF	2.5950 FEET
							YMRF	0.0000 FEET
							ZMRF	0.0167 FEET
							SCALE	0.0150 SCALE

MACH 1.001

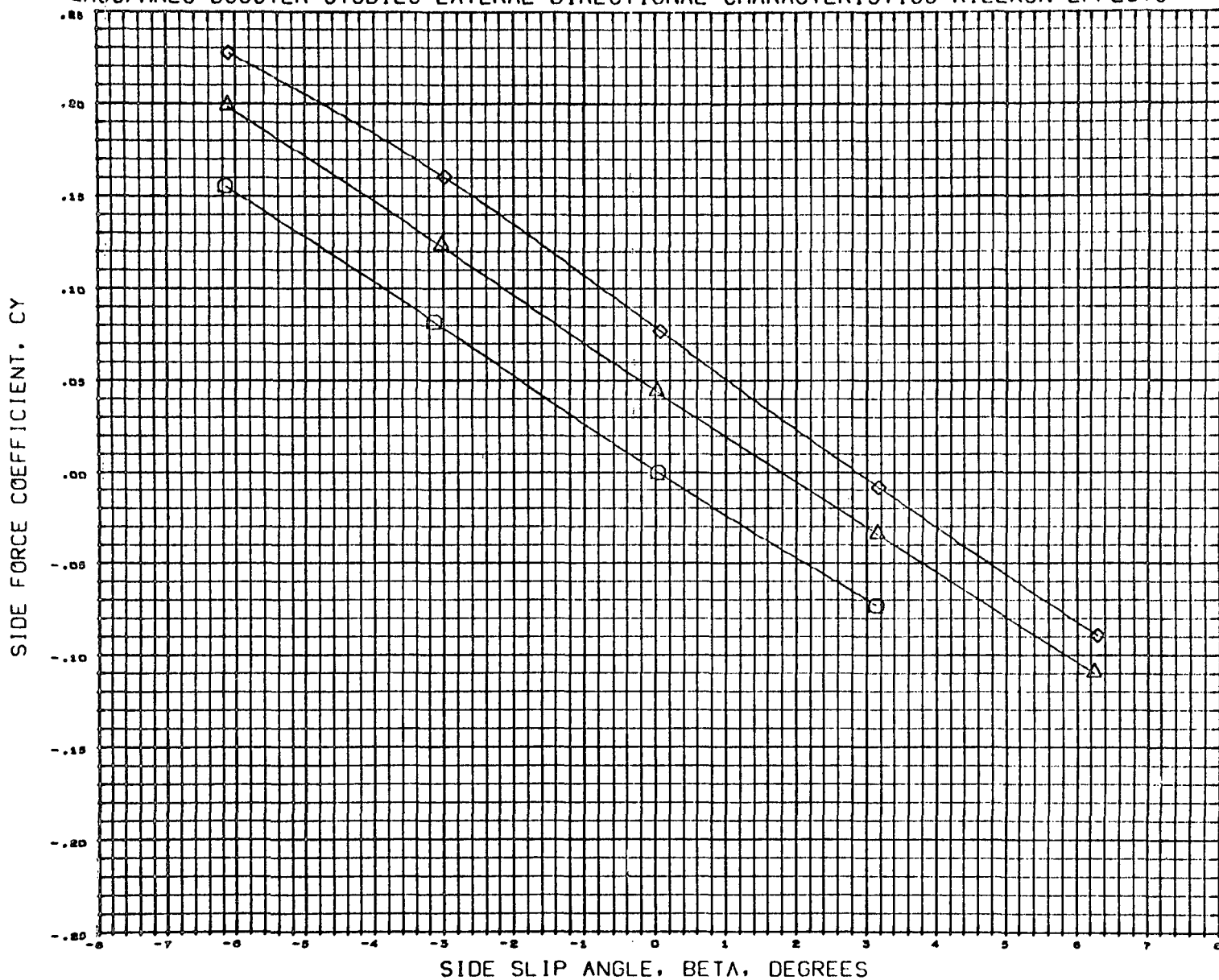
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(RNS003)	NORDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.135	0.000	0.000	0.000	SREF	1.3550 00.FT.
(RNS039)	NORDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.167	0.000	10.000	0.000	LREF	3.4530 FEET
(RNS043)	DATA NOT AVAILABLE FOR ALL CONDITIONS	6.214	0.000	20.000	0.000	BREF	3.4530 FEET
						XMRP	2.5050 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 1.124

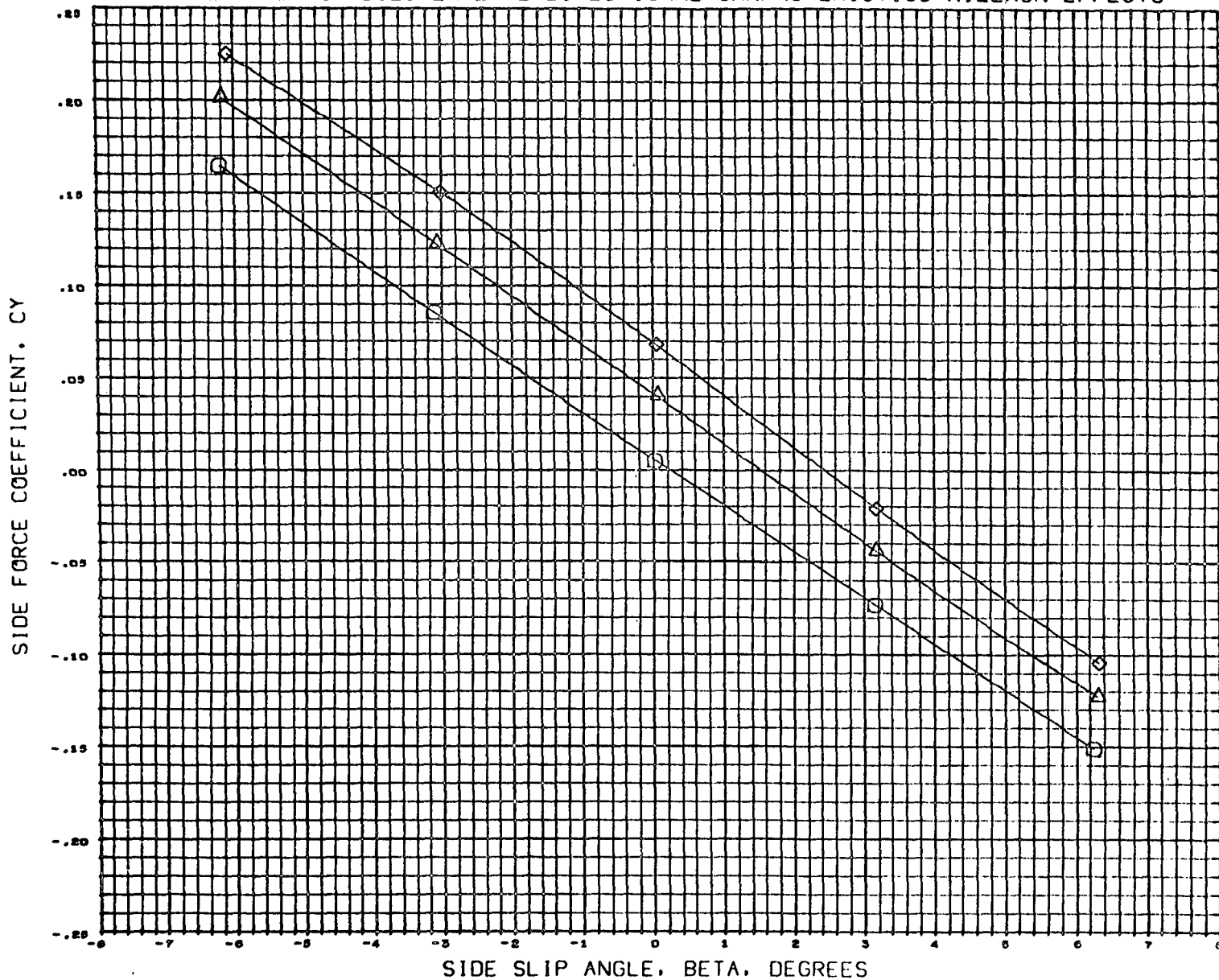
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(RN3004)	N8RDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.440	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3040)	N8RDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.524	0.000	10.000	0.000	LREF	3.4530 FEET
(RN3044)	N8RDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.555	0.000	20.000	0.000	BREF	3.4530 FEET
						XMPP	2.5950 FEET
						YMPP	0.0000 FEET
						ZMPP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.702

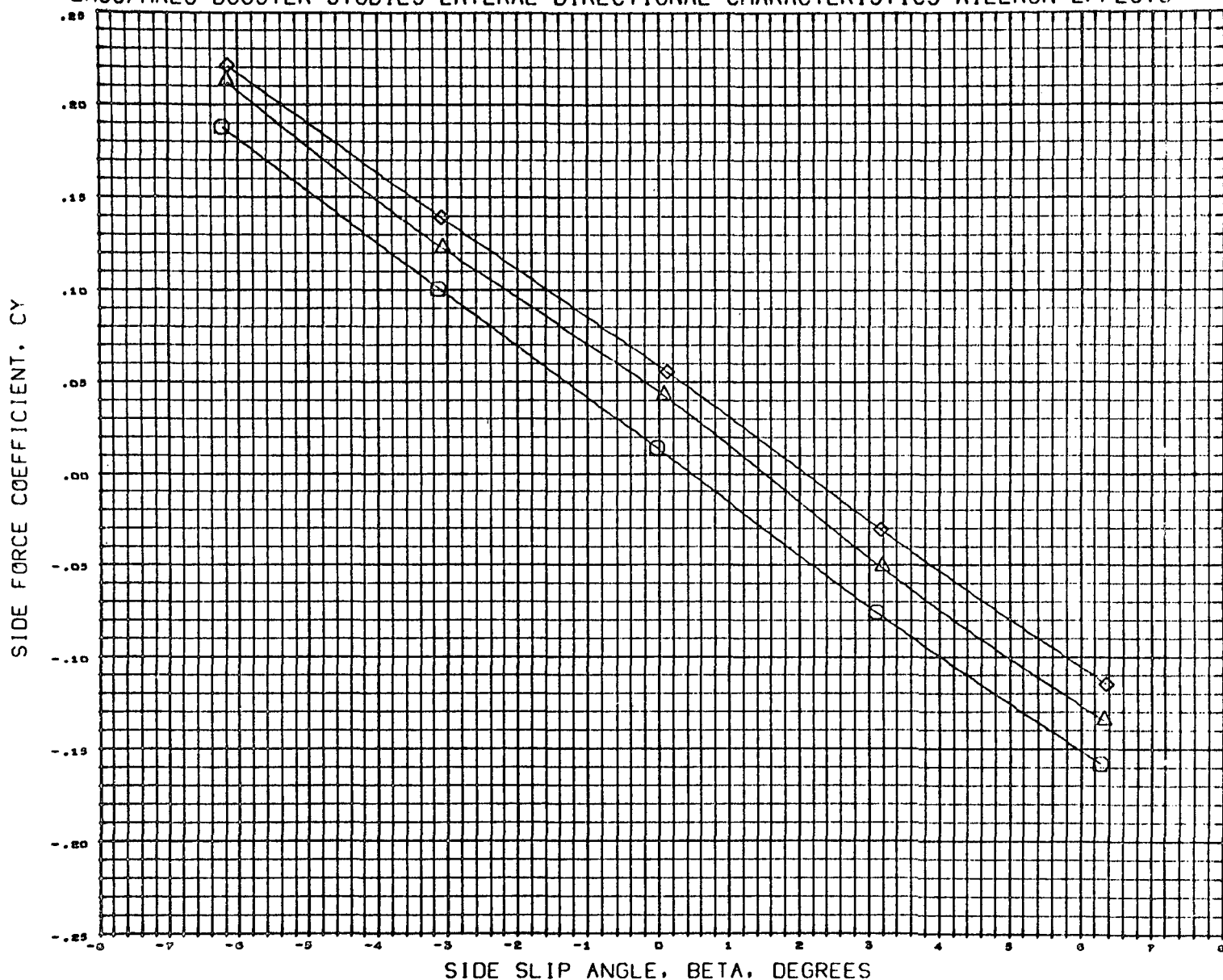
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(R3004)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.440	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(R3040)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.524	0.000	10.000	0.000	LREF	3.4530 FEET
(R3044)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.555	0.000	20.000	0.000	SREF	3.4530 FEET
						XMRP	2.9990 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.600

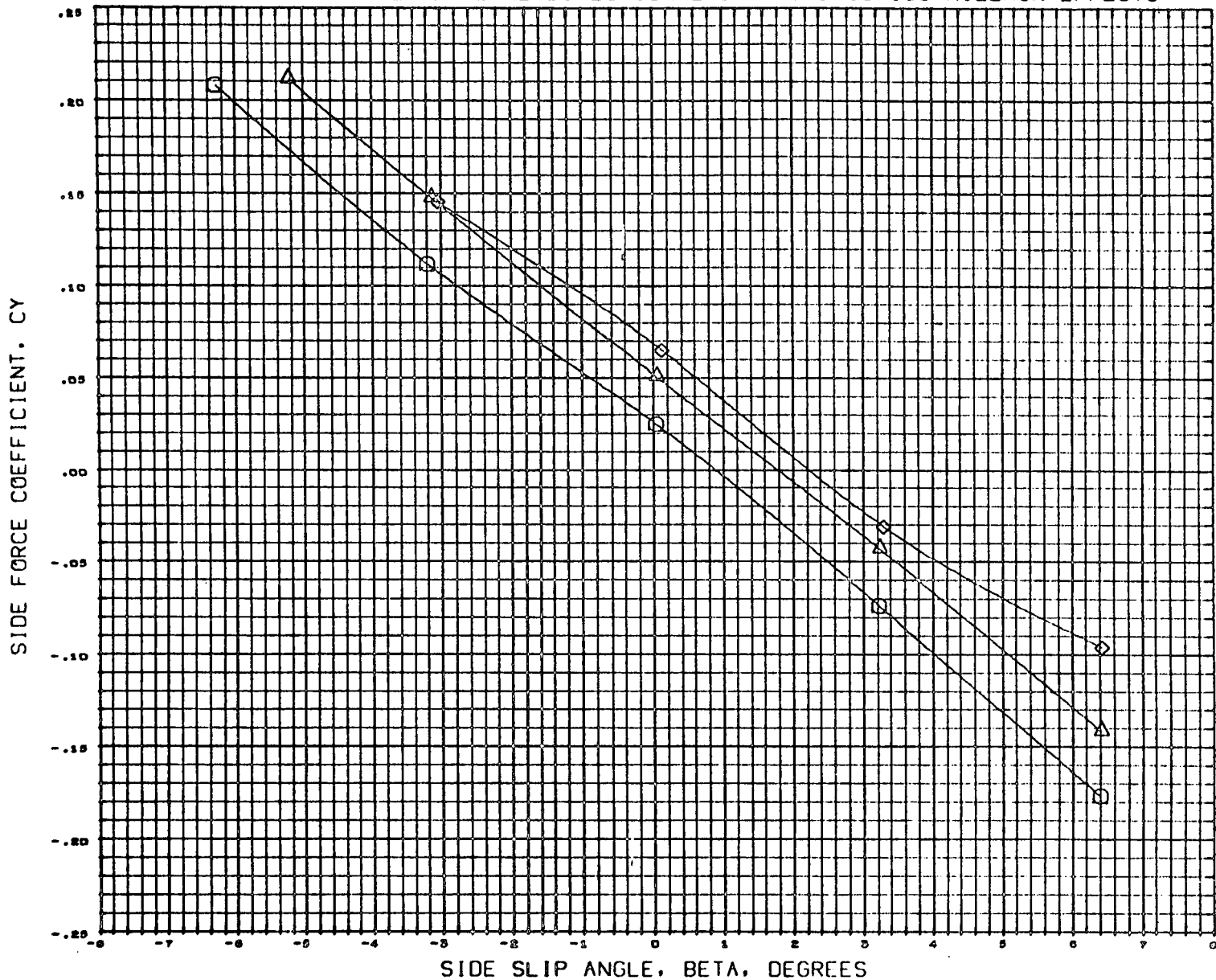
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(RN3004)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.440	0.000	0.000	0.000	SREF	1.3350 SQ.FT.
(RN3040)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.524	0.000	10.000	0.000	LREF	3.4530 FEET
(RN3044)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.555	0.000	20.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.903

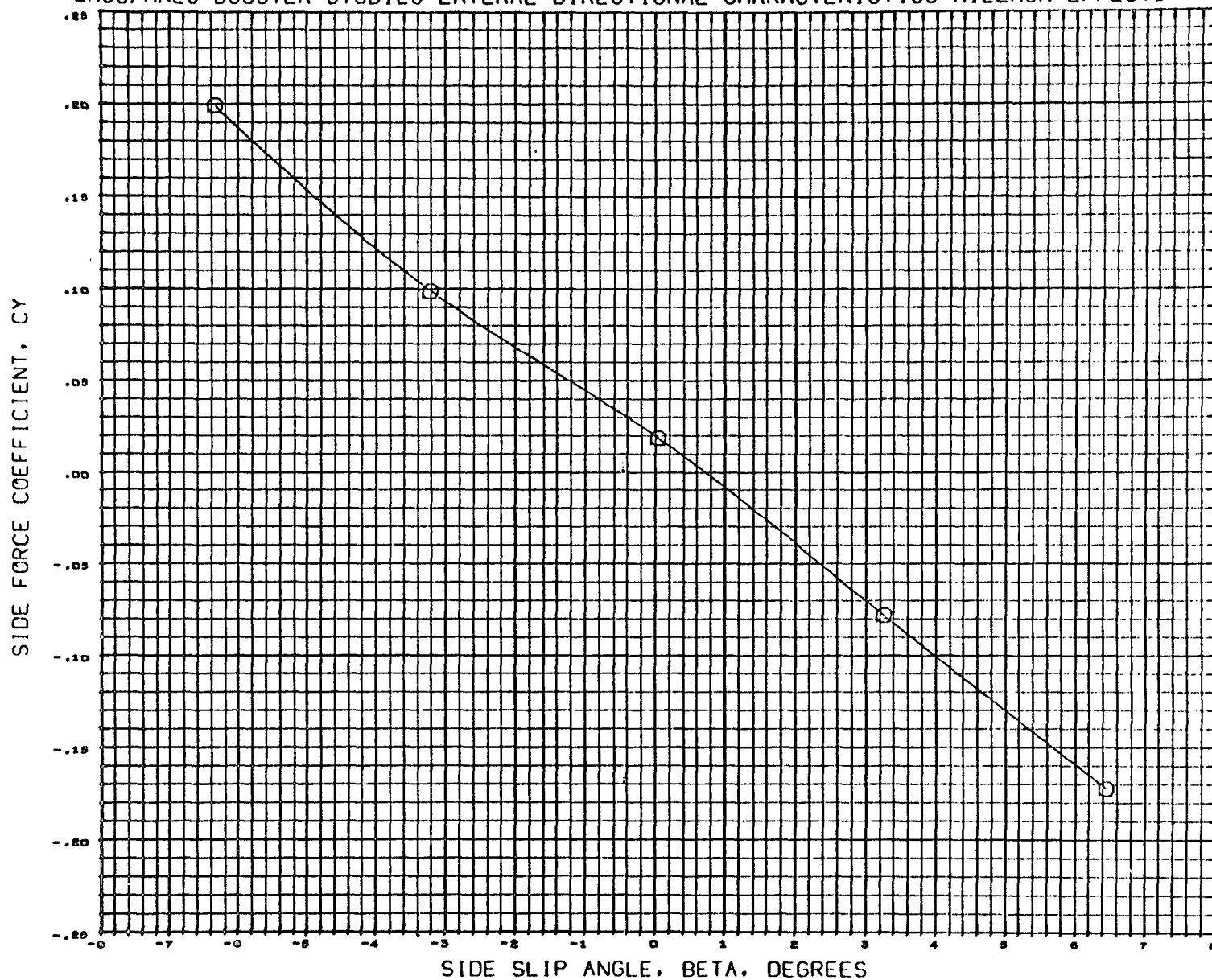
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(RN3004)	N8RDC-3210,M8FC/LMSC BOOSTER B1C2F2W1V1	15.440	0.000	0.000	0.000	SREF	1.3550 30. FT.
(RN3040)	N8RDC-3210,M8FC/LMSC BOOSTER B1C2F2W1V1	15.524	0.000	10.000	0.000	LREF	3.4530 FEET
(RN3044)	N8RDC-3210,M8FC/LMSC BOOSTER B1C2F2W1V1	15.555	0.000	20.000	0.000	BREF	3.4930 FEET
						XMRP	8.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 1.001

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS



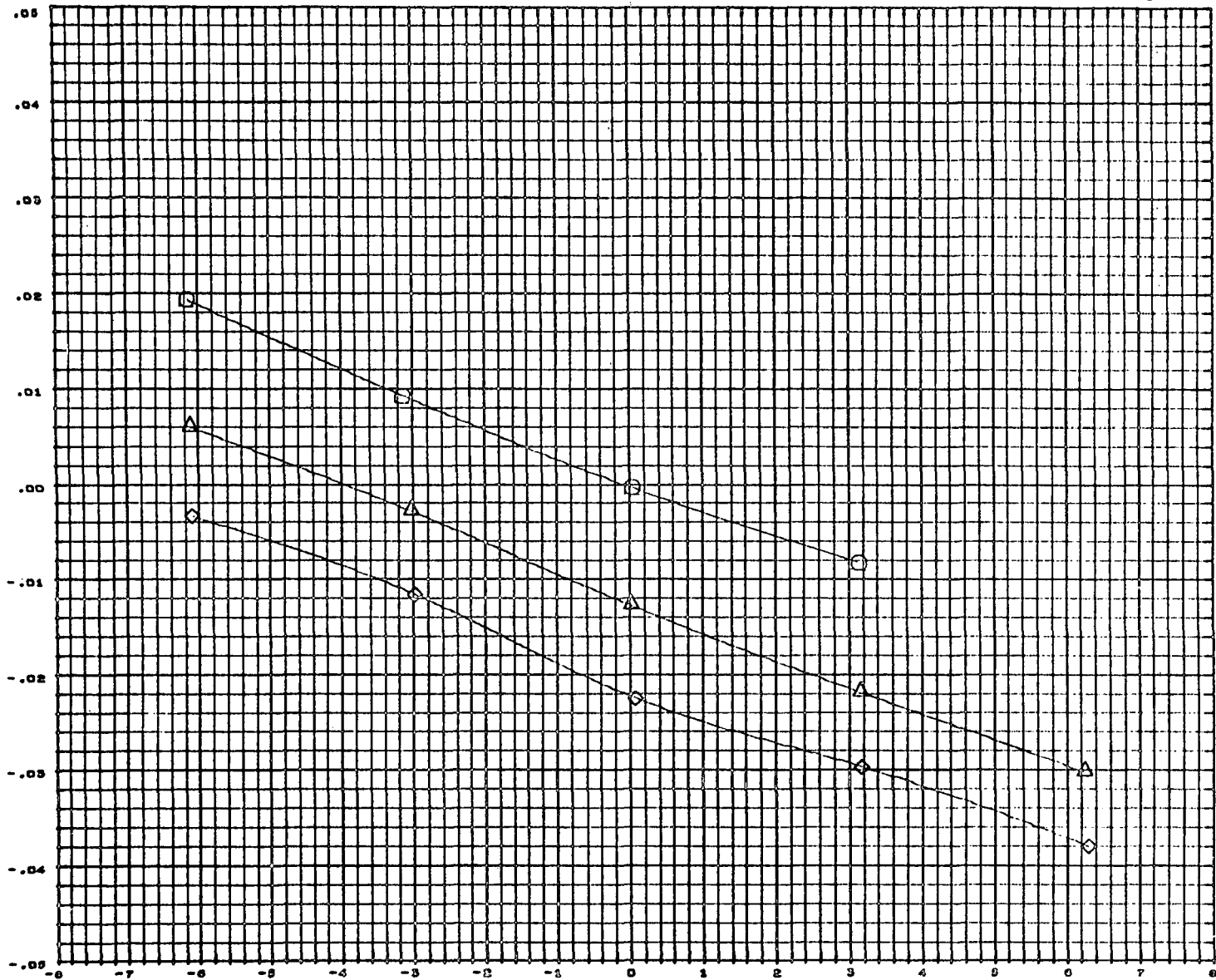
DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (RN3004) MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1
 (RN3040) DATA NOT AVAILABLE FOR ALL CONDITIONS
 (RN3044) DATA NOT AVAILABLE FOR ALL CONDITIONS

ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
15.440	0.000	0.000	0.000	SREF	1.3950 SQ.FT.
15.524	0.000	10.000	0.000	LREF	3.4530 FEET
15.555	0.000	20.000	0.000	BREF	3.4530 FEET
				XMRP	2.5950 FEET
				YMRP	0.0000 FEET
				ZMRP	0.0167 FEET
				SCALE	0.0150 SCALE

MACH 1.125

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS

YAWING MOMENT COEFFICIENT, CYN (BODY AXIS)

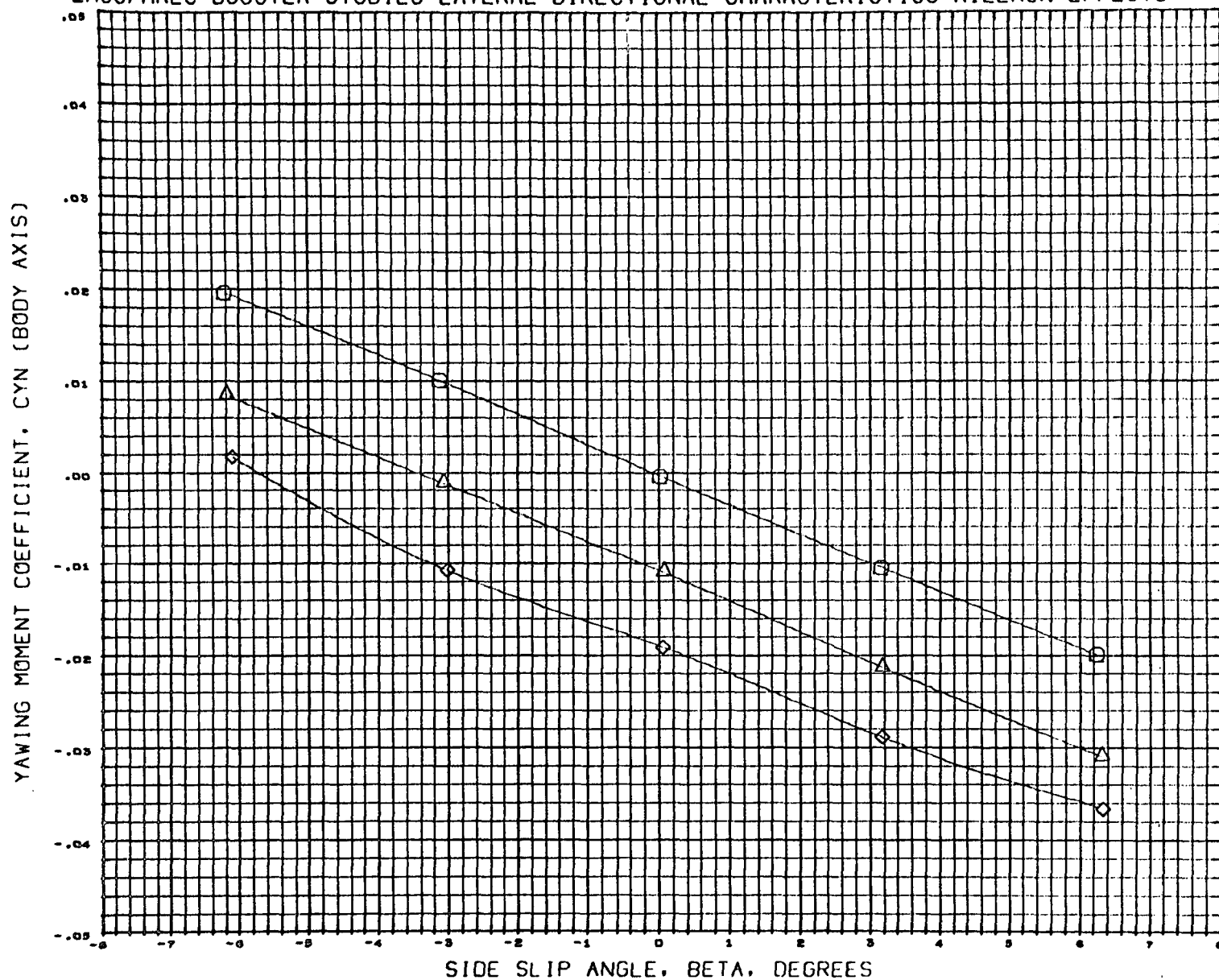


SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(RN3004)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.440	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3040)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.524	0.000	10.000	0.000	LREF	3.4530 FEET
(RN3044)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.555	0.000	20.000	0.000	BREF	3.4530 FEET
						XMRP	2.5930 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.702

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS

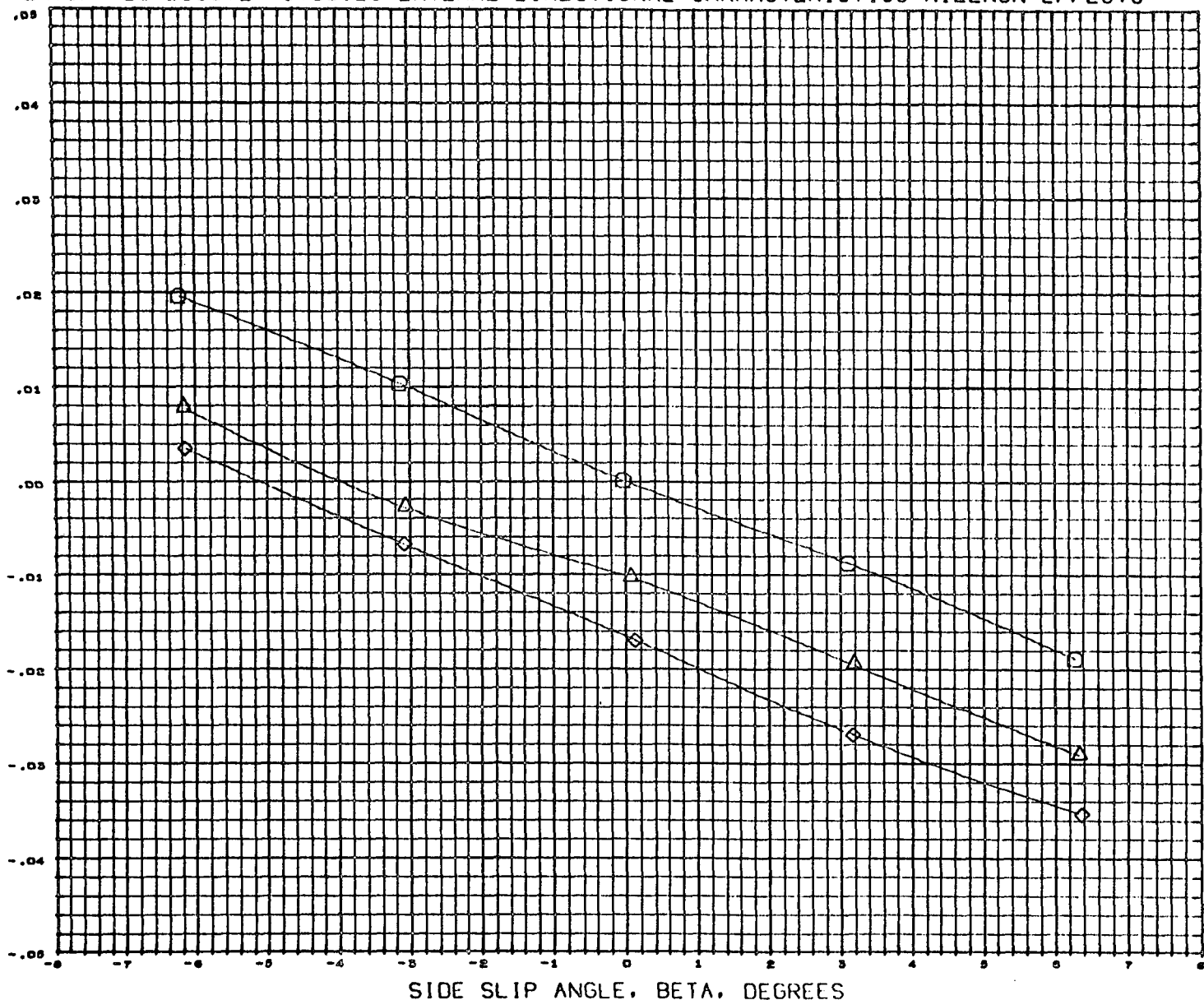


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(R3004)	N8RDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.440	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(R3040)	N8RDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.524	0.000	10.000	0.000	LREF	3.4930 FEET
(R3044)	N8RDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.555	0.000	20.000	0.000	BREF	3.4930 FEET
						XMRF	2.9850 FEET
						YMRF	0.0000 FEET
						ZMRF	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.800

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS

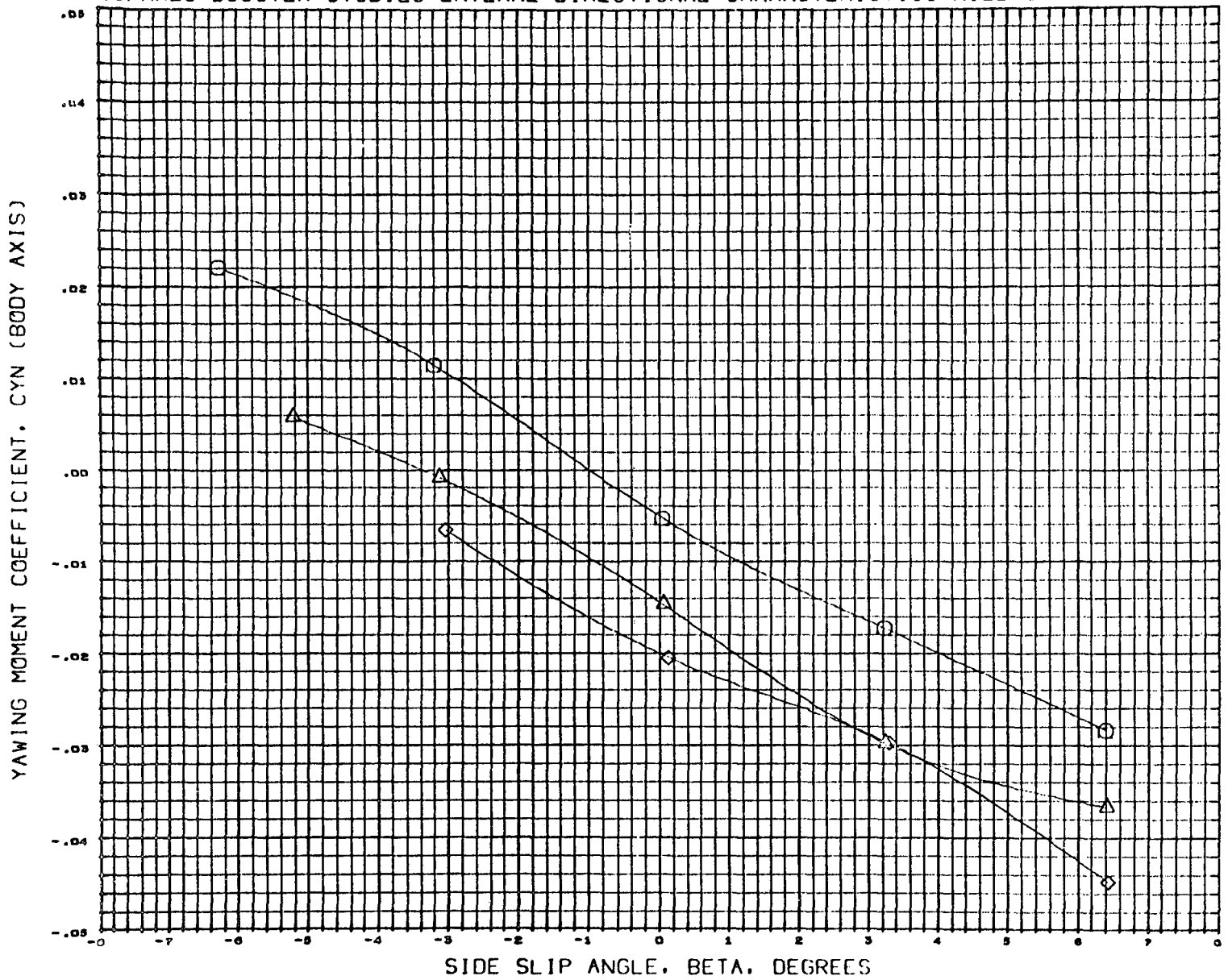
YAWING MOMENT COEFFICIENT, CYN (BODY AXIS)



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(RN3004)	MSRDC-3210,MSFC/LM8C BOOSTER B1C2F2W1V1	15.440	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3040)	MSRDC-3210,MSFC/LM8C BOOSTER B1C2F2W1V1	15.524	0.000	10.000	0.000	LREF	3.4530 FEET
(RN3044)	MSRDC-3210,MSFC/LM8C BOOSTER B1C2F2W1V1	15.555	0.000	20.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.903

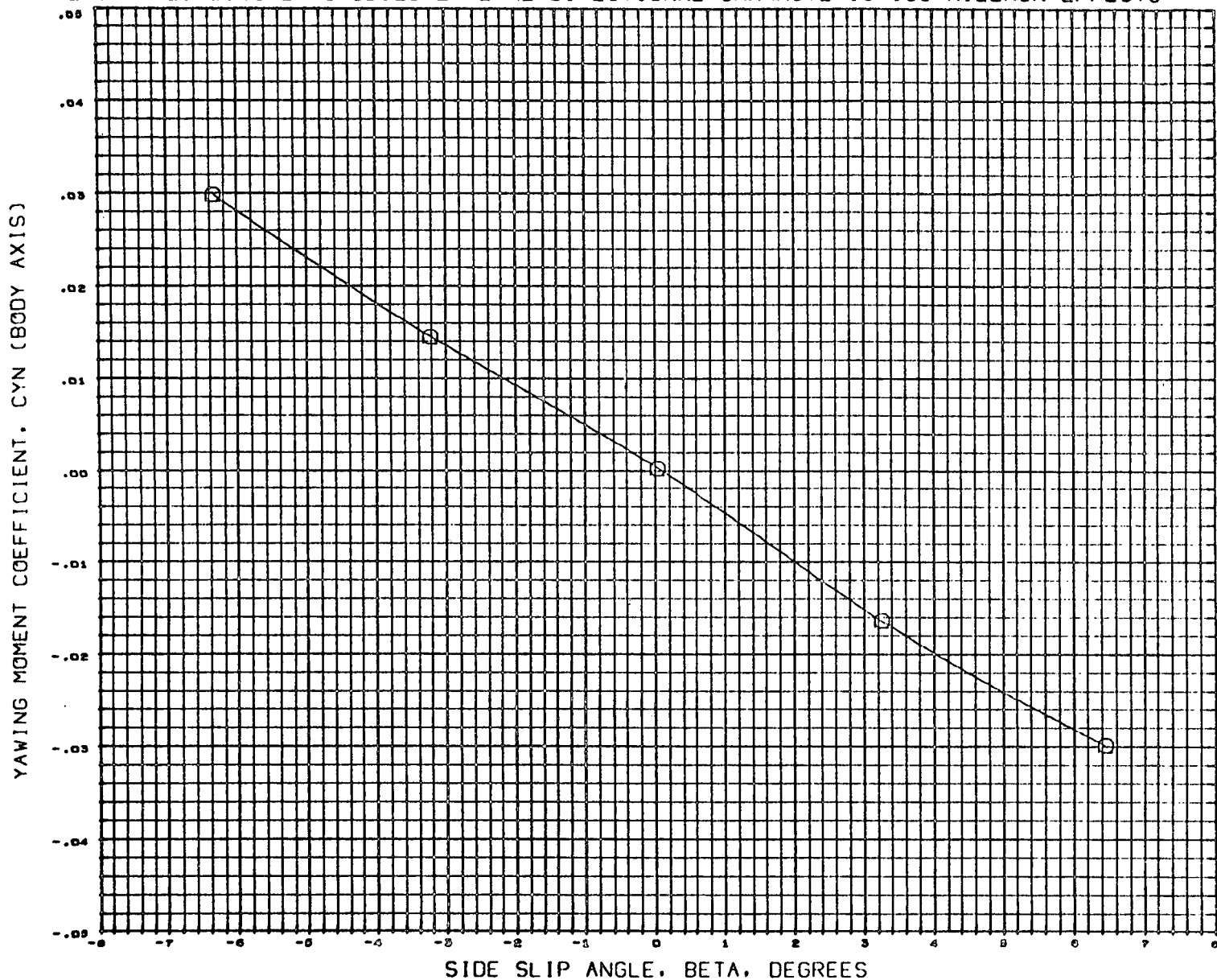
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(RN3004)	NSRDC-3210, M8FC/LMSC BOOSTER B1C2F2W1V1	15.440	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(RN3040)	NSRDC-3210, M8FC/LMSC BOOSTER B1C2F2W1V1	15.524	0.000	10.000	0.000	LREF	3.4530 FEET
(RN3044)	NSRDC-3210, M8FC/LMSC BOOSTER B1C2F2W1V1	15.555	0.000	20.000	0.000	BREF	3.4530 FEET
						XMRP	2.9850 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 1.001

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS

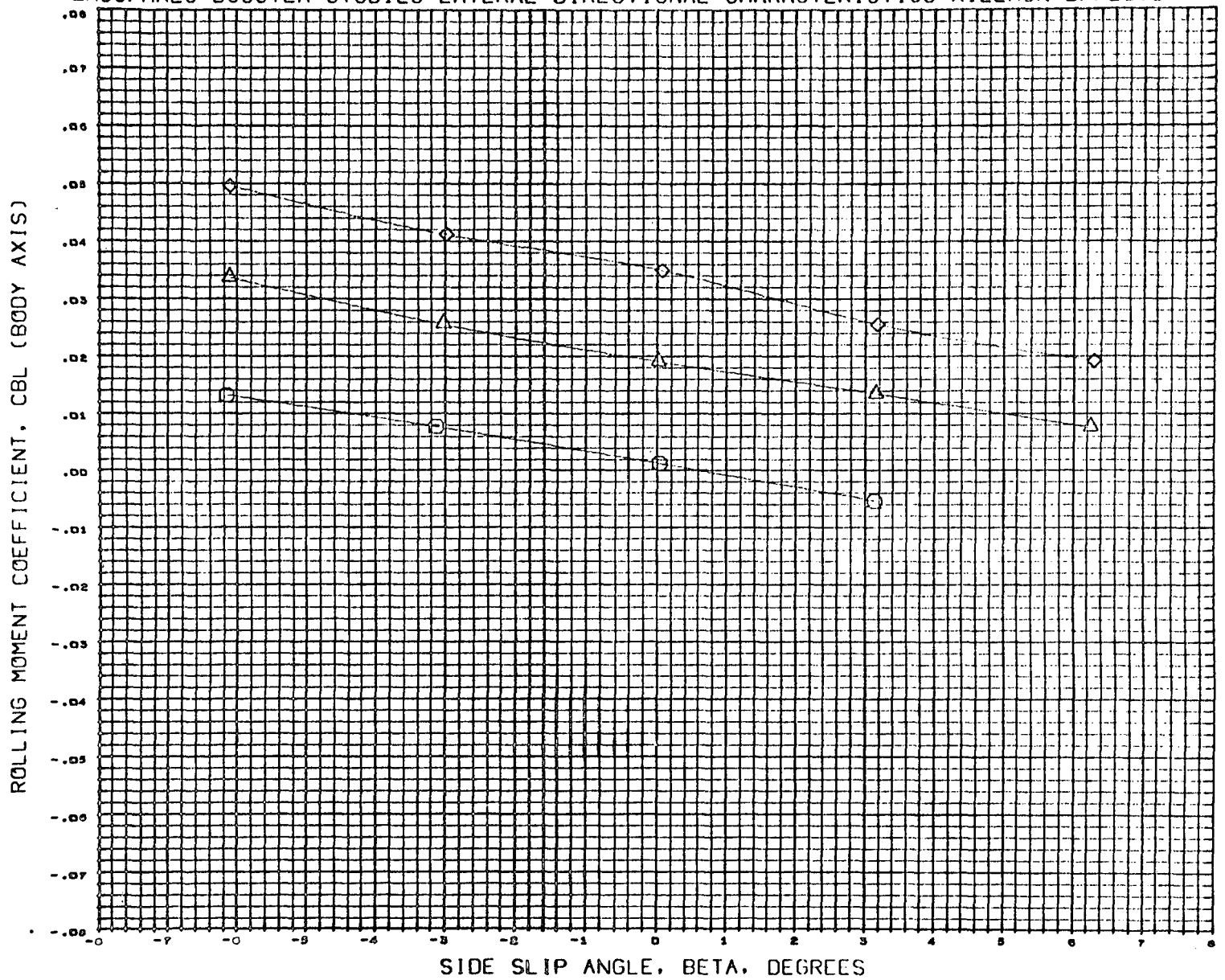


DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (RNS004) N8RDC-3210, HSPC/LMSC BOOSTER B1C2F2W1V1
 (RNS040) DATA NOT AVAILABLE FOR ALL CONDITIONS
 (RNS044) DATA NOT AVAILABLE FOR ALL CONDITIONS

ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
15.440	0.000	0.000	0.000	BREF 1.3550 80. FT.
15.524	0.000	10.000	0.000	LREF 3.4530 FEET
15.555	0.000	20.000	0.000	BREF 3.4530 FEET
				XMRP 2.5950 FEET
				YMRP 0.0000 FEET
				ZMRP 0.0167 FEET
				SCALE 0.0150 SCALE

MACH 1.125

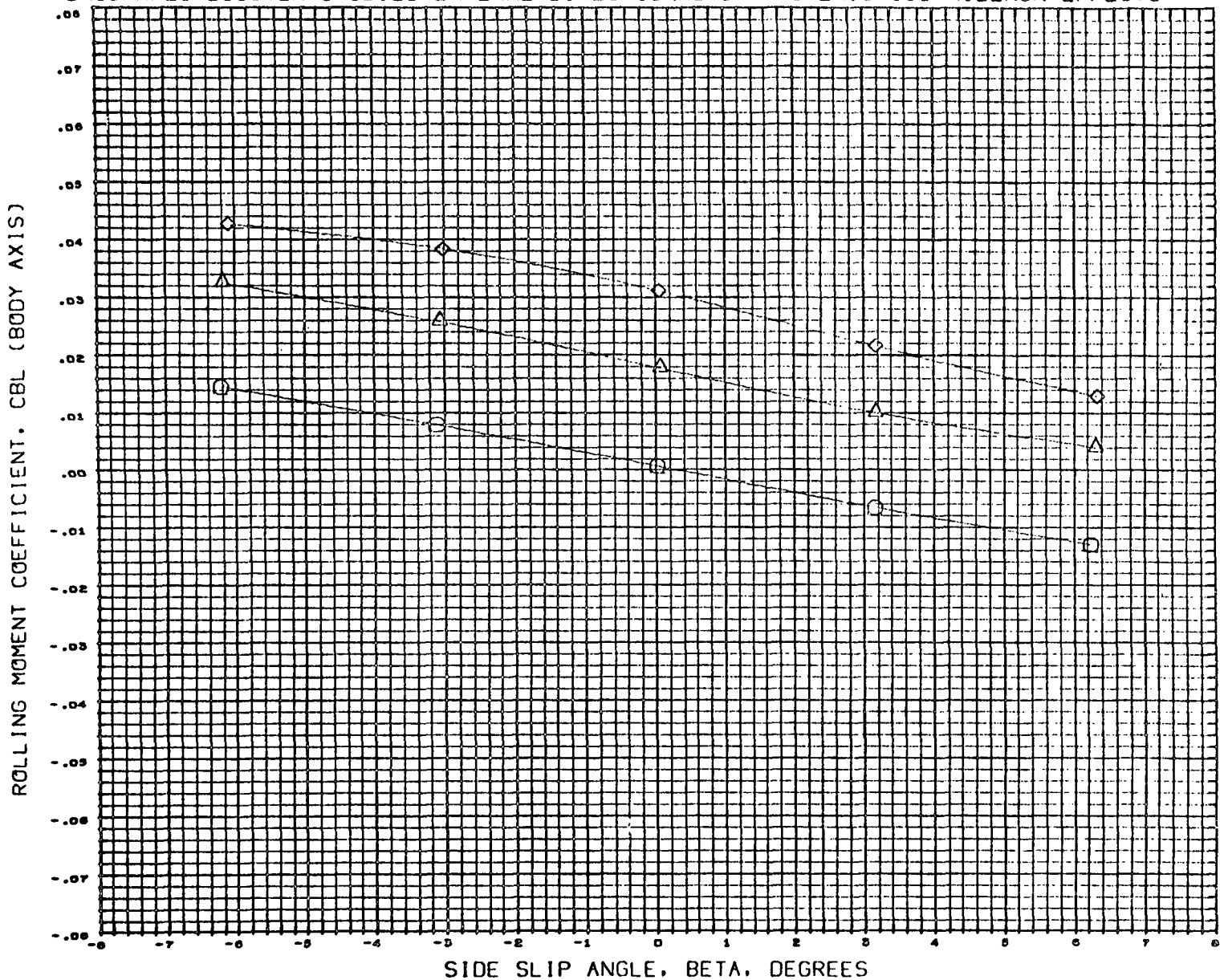
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(RNS004)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.440	0.000	0.000	0.000	BREF	1.3550 SQ. FT.
(RNS040)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.524	0.000	10.000	0.000	LREF	3.4530 FEET
(RNS044)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.555	0.000	20.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.702

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS

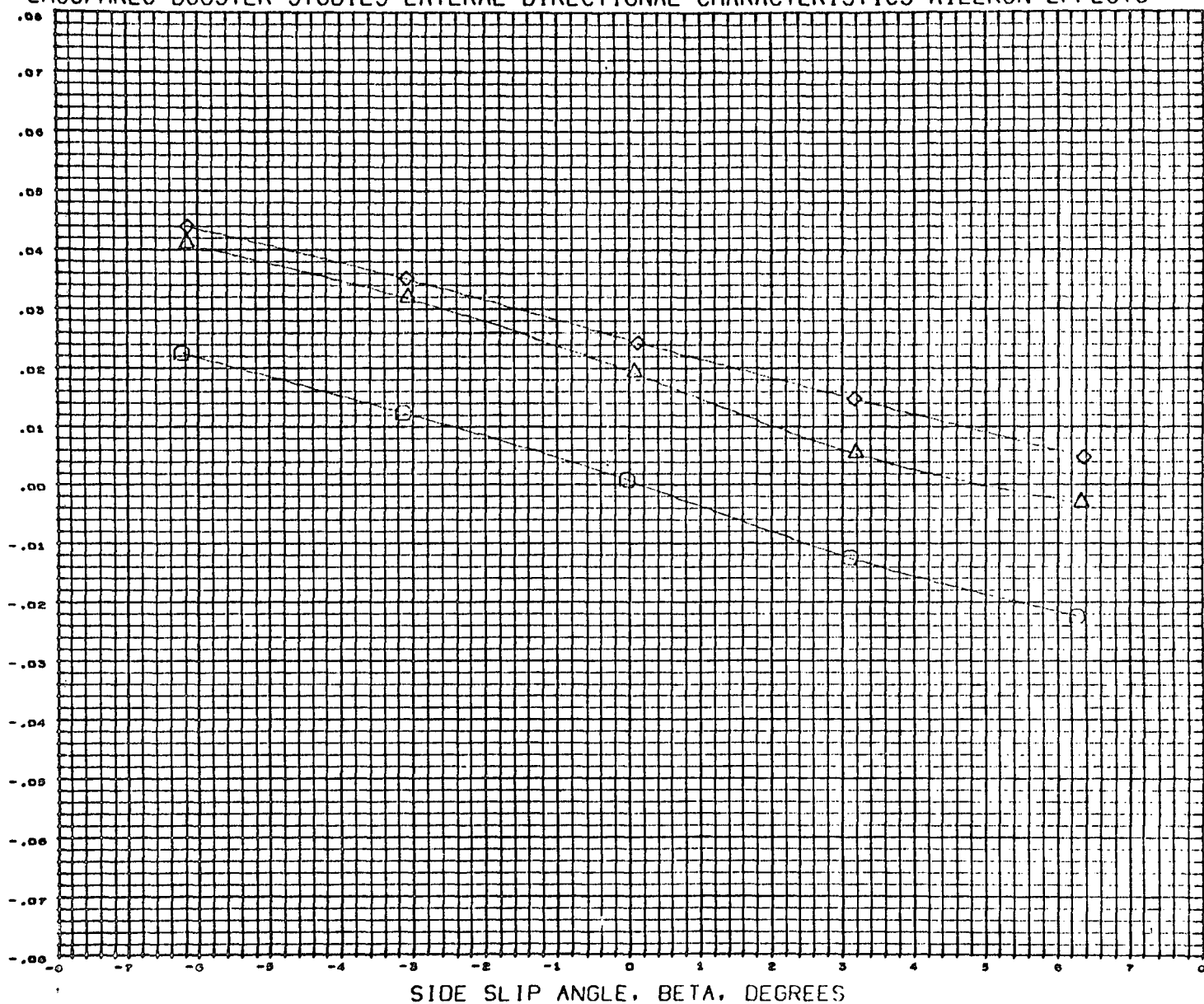


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(RNS004)	NSRDC-3210,MSFC/LM8C BOOSTER B1C2F2W1V1	15.440	0.000	0.000	0.000	SREF	1.3950 SQ.FT.
(RNS040)	NSRDC-3210,MSFC/LM8C BOOSTER B1C2F2W1V1	15.524	0.000	10.000	0.000	LREF	3.4530 FEET
(RNS044)	NSRDC-3210,MSFC/LM8C BOOSTER B1C2F2W1V1	15.555	0.000	20.000	0.000	QREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.800

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)

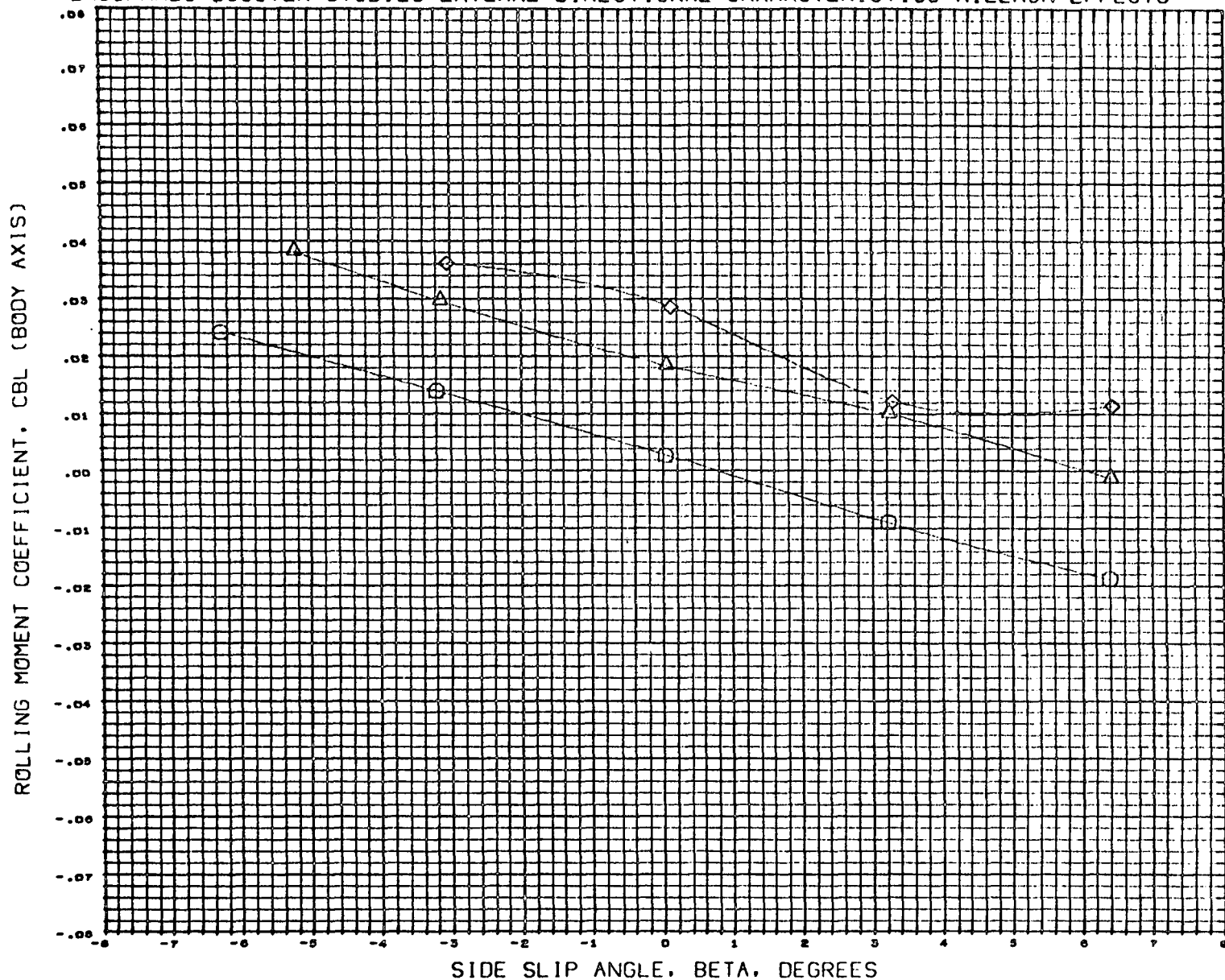


SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(RNS004)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.440	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RNS040)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.524	0.000	10.000	0.000	LREF	3.4530 FEET
(RNS044)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.555	0.000	20.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.003

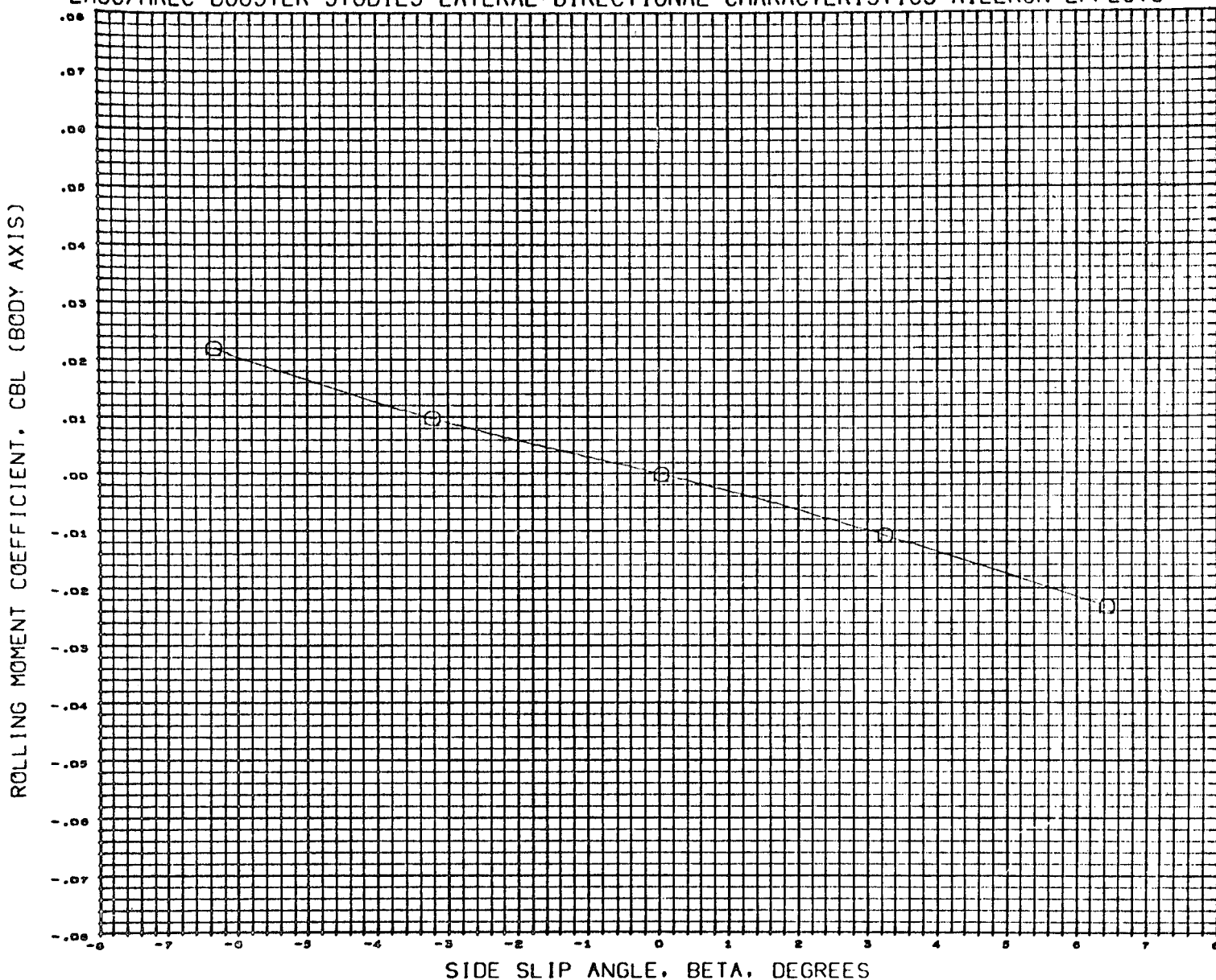
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(RNS004)	NBRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.440	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(RNS040)	NBRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.524	0.000	10.000	0.000	LREF	3.4530 FEET
(RNS044)	NBRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.555	0.000	20.000	0.000	BREF	3.4530 FEET
						XMRP	2.5930 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 1.001

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-AILERON EFFECTS

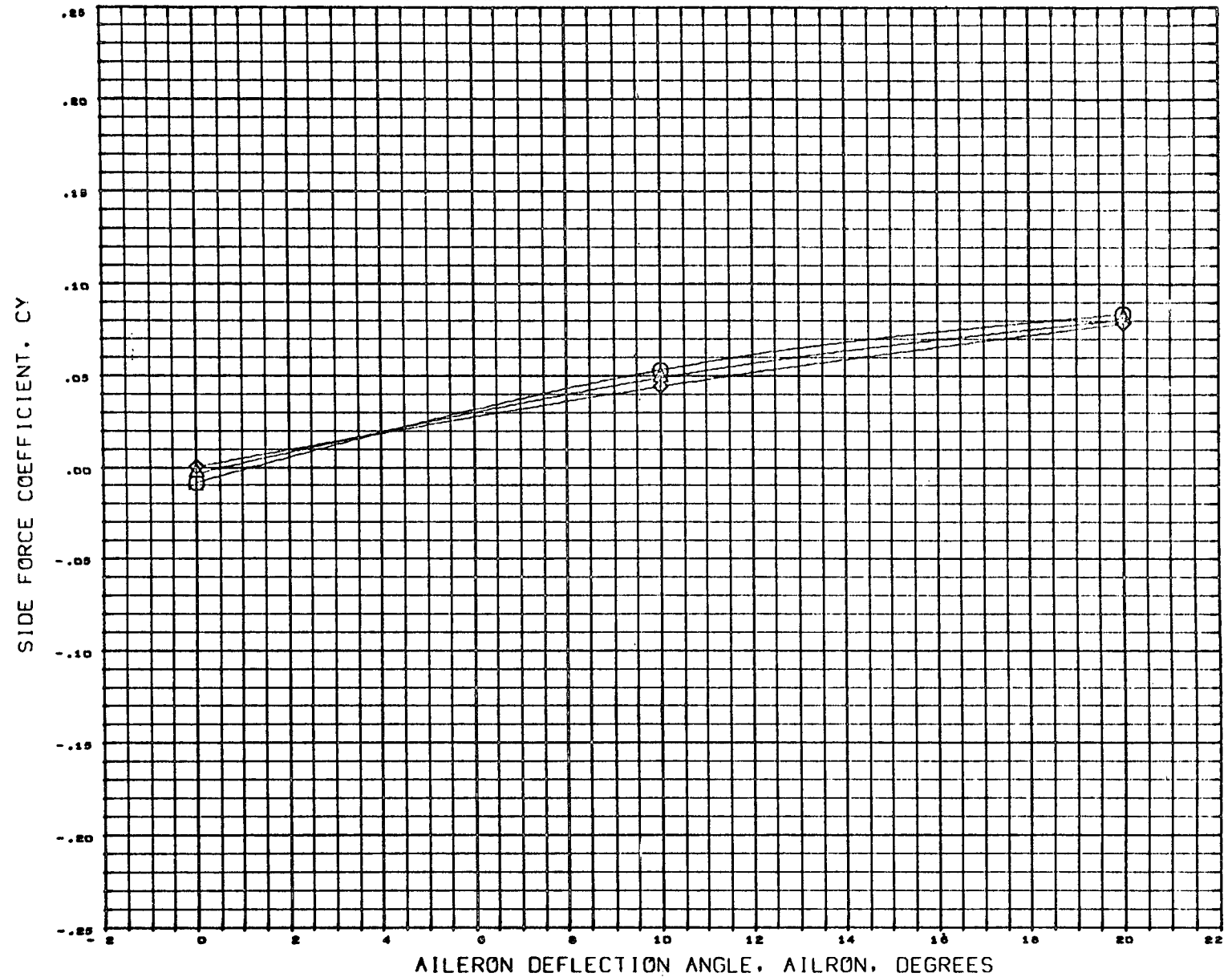


DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (RNS004) NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1
 (RNS040) DATA NOT AVAILABLE FOR ALL CONDITIONS
 (RNS044) DATA NOT AVAILABLE FOR ALL CONDITIONS

ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
15.440	0.000	0.000	0.000	SREF	1.3990 SQ. FT.
15.524	0.000	10.000	0.000	LREF	3.4530 FEET
15.555	0.000	20.000	0.000	BREF	3.4530 FEET
				XMRF	2.5950 FEET
				YMRF	0.0000 FEET
				ZMRF	0.0167 FEET
				SCALE	0.0150 SCALE

MACH 8.125

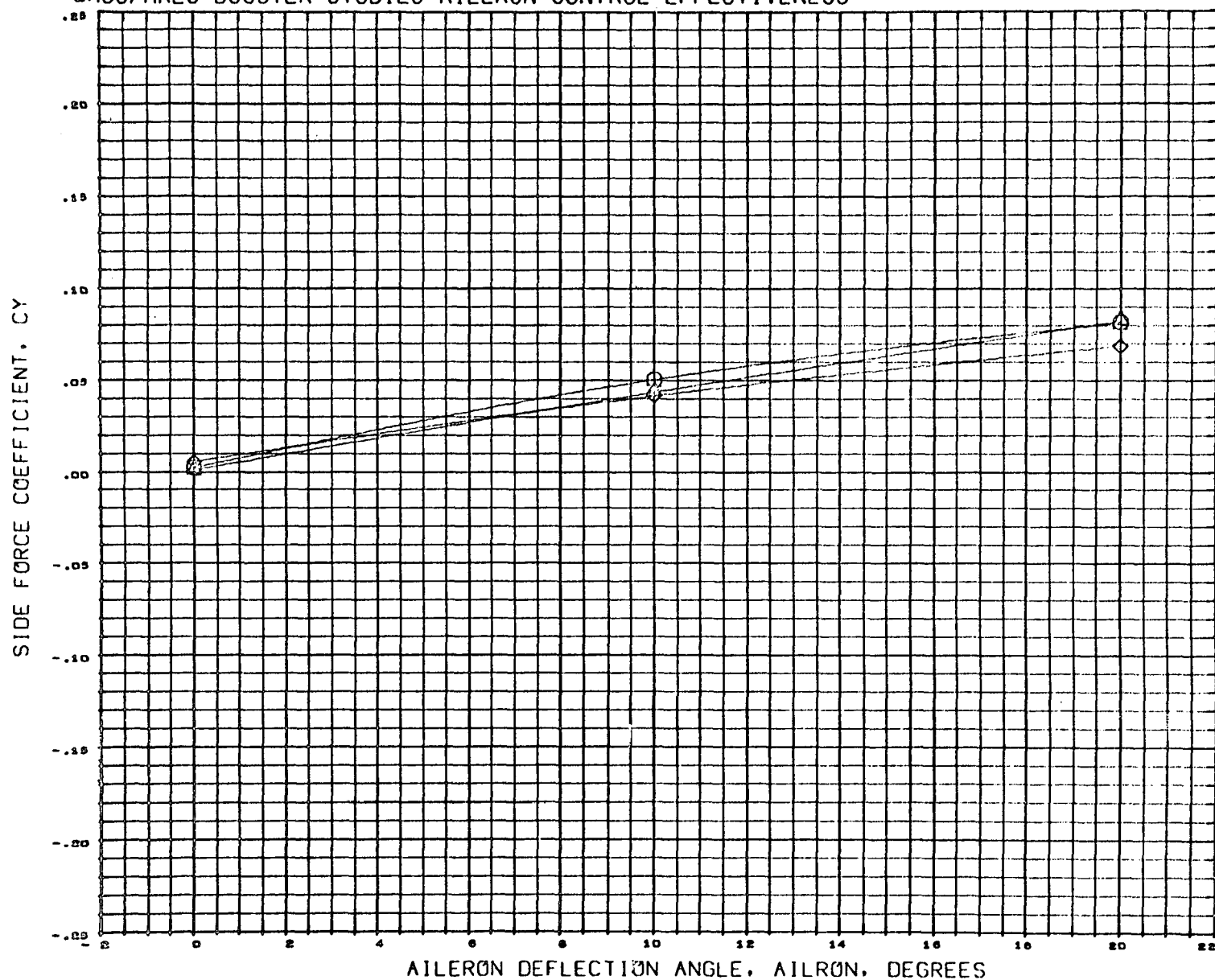
LMSC/HREC BOOSTER STUDIES-AILERON CONTROL EFFECTIVENESS



AILERON DEFLECTION ANGLE, AILERON, DEGREES

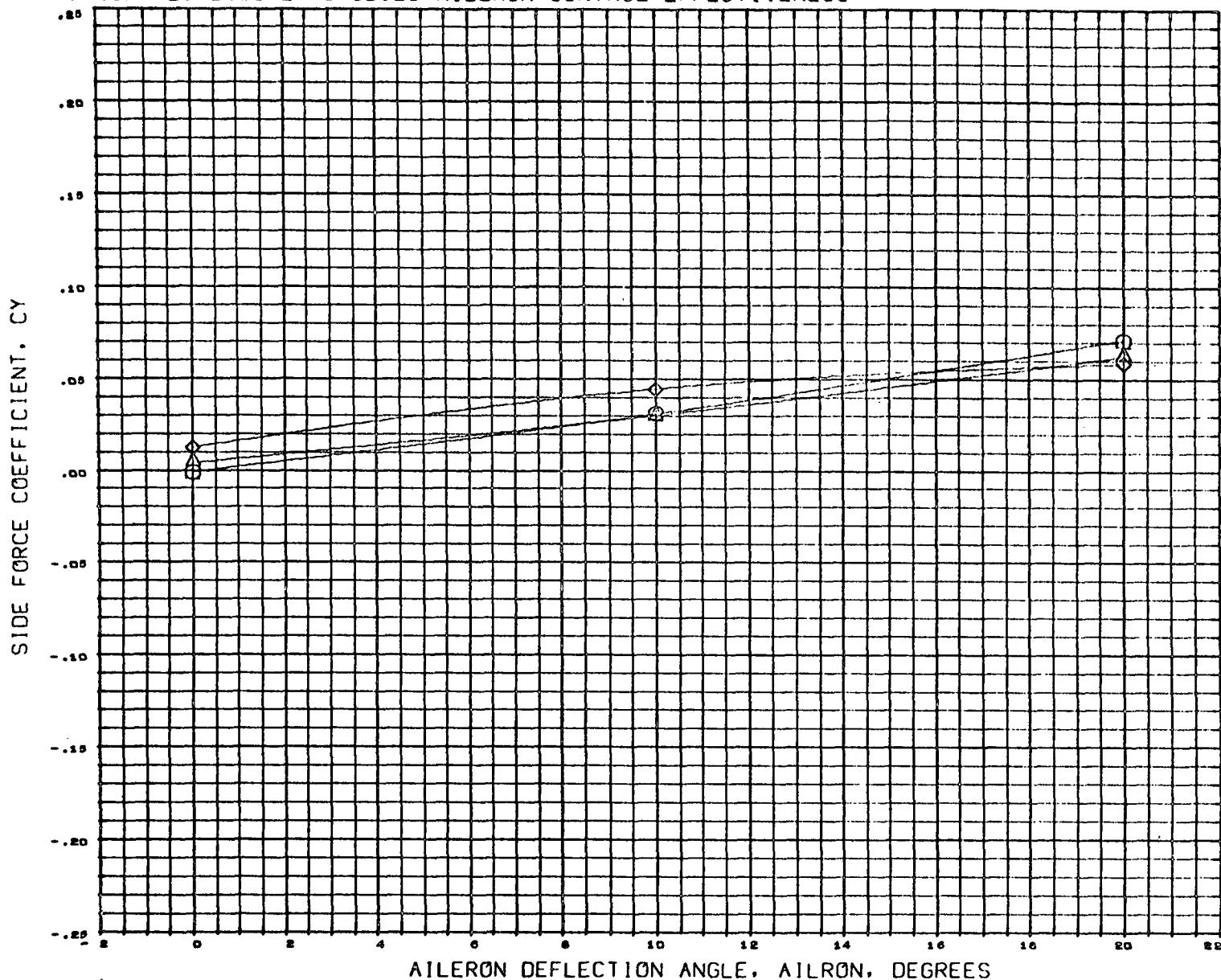
SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	0.000	MACH	0.700	BETA	0.000	SREF	1.3550	SQ. FT.
△	6.150	INCIDC	3.000	INCIDW	0.000	LREF	3.4530	FEET
◇	15.900	MSFLOW	0.000	CANARD	0.000	OREF	3.4530	FEET
		ELEVTR	0.000	RUDDER	0.000	XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000	YMRP	0.0000	FEET
		DATA HIST. CODE	1*AM			ZMRP	0.0187	FEET
						SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-AILERON CONTROL EFFECTIVENESS



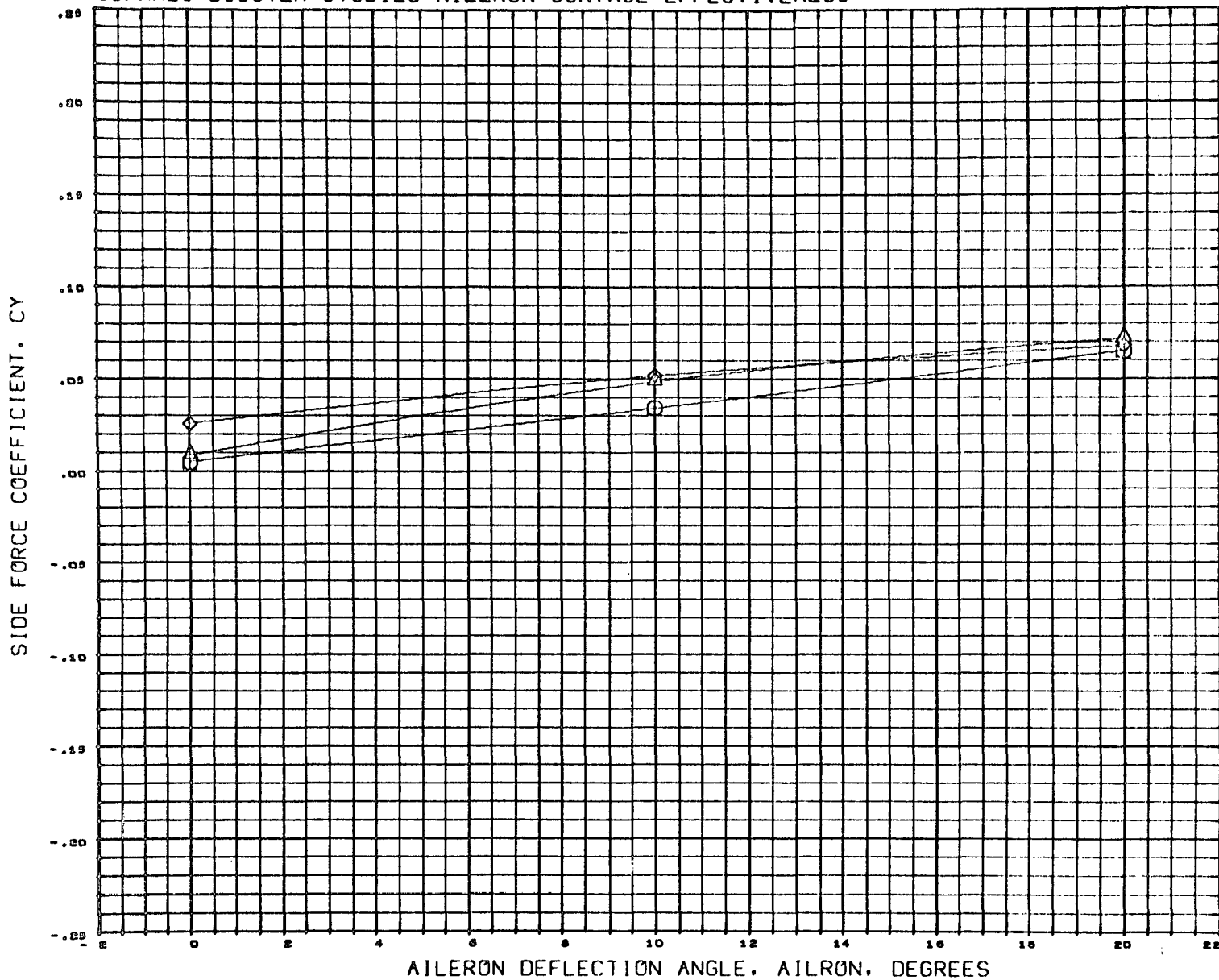
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○	0.000	<u>MACH</u>	0.000	<u>BETA</u>	0.000	SREF	1.3550 SQ. FT.
△	0.190	<u>INCIDC</u>	3.000	<u>INCIDW</u>	0.000	LREF	3.4530 FEET
◇	19.900	<u>MSFLOW</u>	0.000	<u>CANARD</u>	0.000	BREF	3.4530 FEET
		<u>ELEVTR</u>	0.000	<u>RUDDER</u>	0.000	XMRP	2.5050 FEET
		<u>WNGPOS</u>	1.000	<u>CNDPOS</u>	1.000	YMRP	0.0000 FEET
		<u>DATA HIST. CODE</u>	I#AM			ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

LMSC/HREC BOOSTER STUDIES-AILERON CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	0.000	<u>MACH</u>	0.900	<u>BETA</u>	0.000	SREF	1.3550	50.FT.
△	0.150	INCIDC	3.000	INCIDW	0.000	LREF	3.4530	FEET
◇	15.500	MSFLOW	0.000	CANARD	0.000	BREF	3.4530	FEET
		ELEVTR	0.000	RUDDER	0.000	XMRP	2.5050	FEET
		WNGPOS	1.000	CNDPOS	1.000	YMRP	0.0000	FEET
		DATA HIST. CODE	1*AM			ZMRP	0.0167	FEET
						SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-AILERON CONTROL EFFECTIVENESS



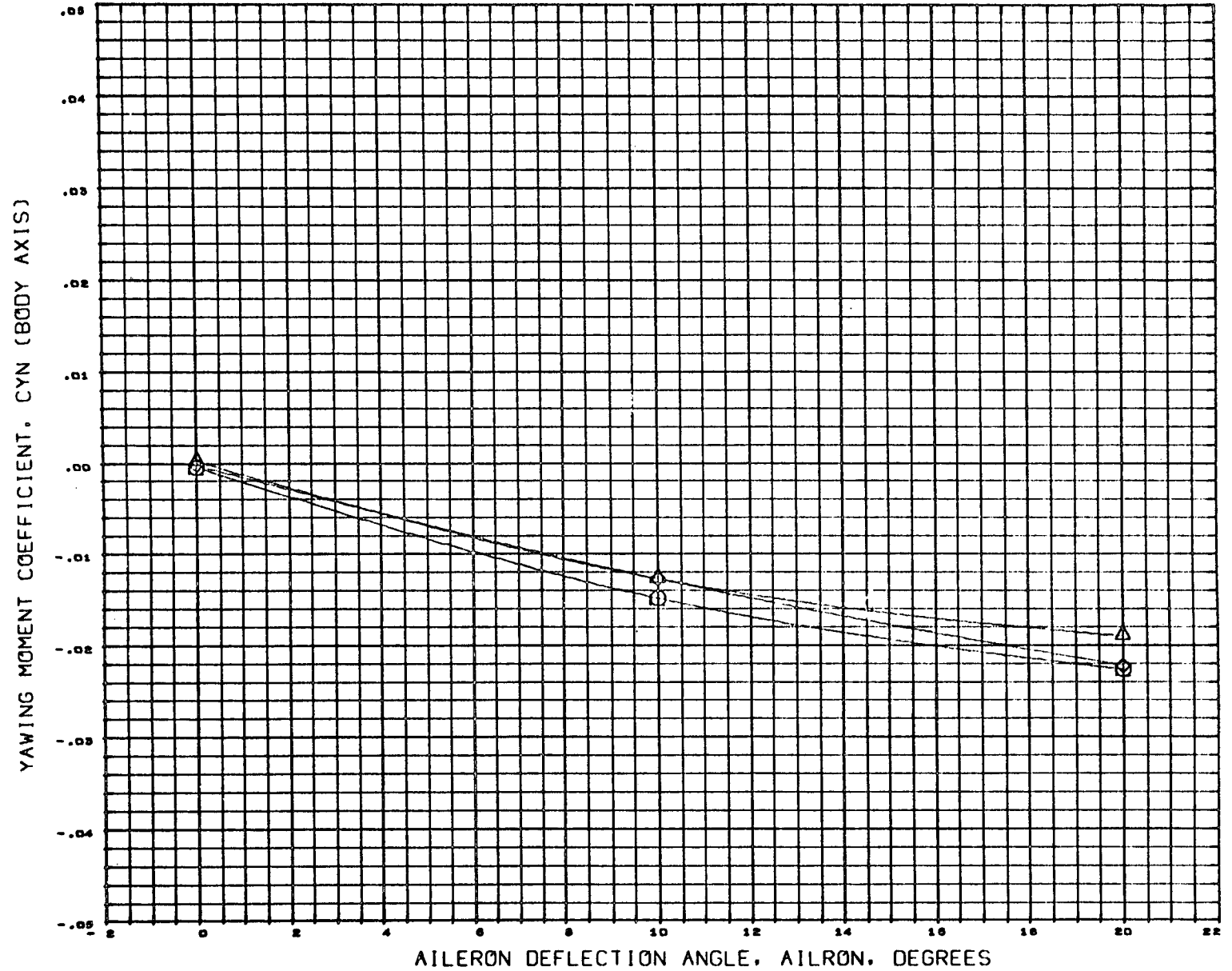
SYMBOL ALPHA
 ○ 0.000
 △ 0.190
 ◇ 19.900

PARAMETRIC VALUES
 MACH 1.000 BETA 0.000
 INCIDC 3.000 INCIDW 0.000
 MSFLOW 0.000 CANARD 0.000
 ELEVTR 0.000 RUDDER 0.000
 WNGPOS 1.000 CNDPOS 1.000
 DATA HIST. CODE 1*AM

REFERENCE INFORMATION

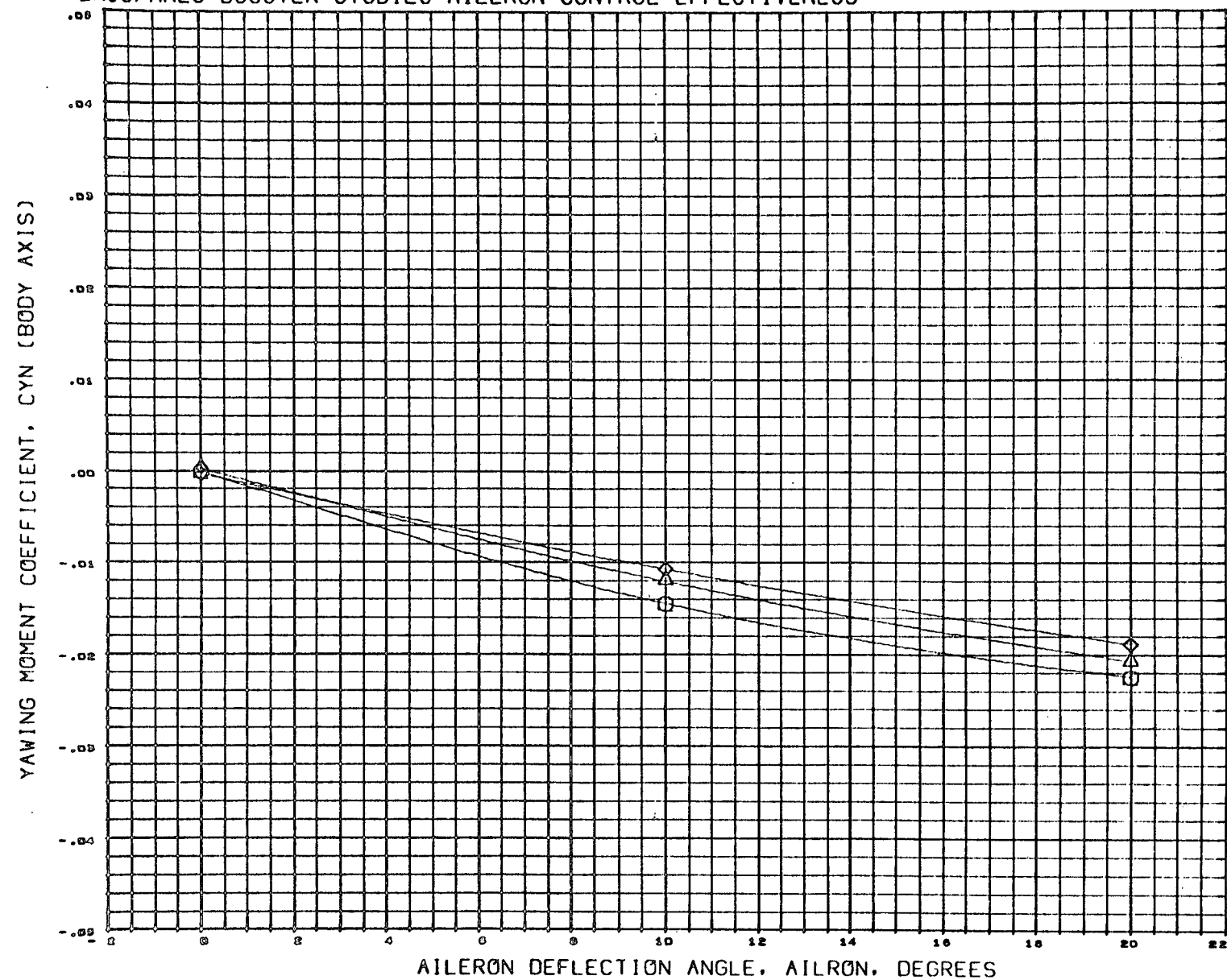
SREF	1.3550	SQ. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0167	FEET
SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-AILERON CONTROL EFFECTIVENESS



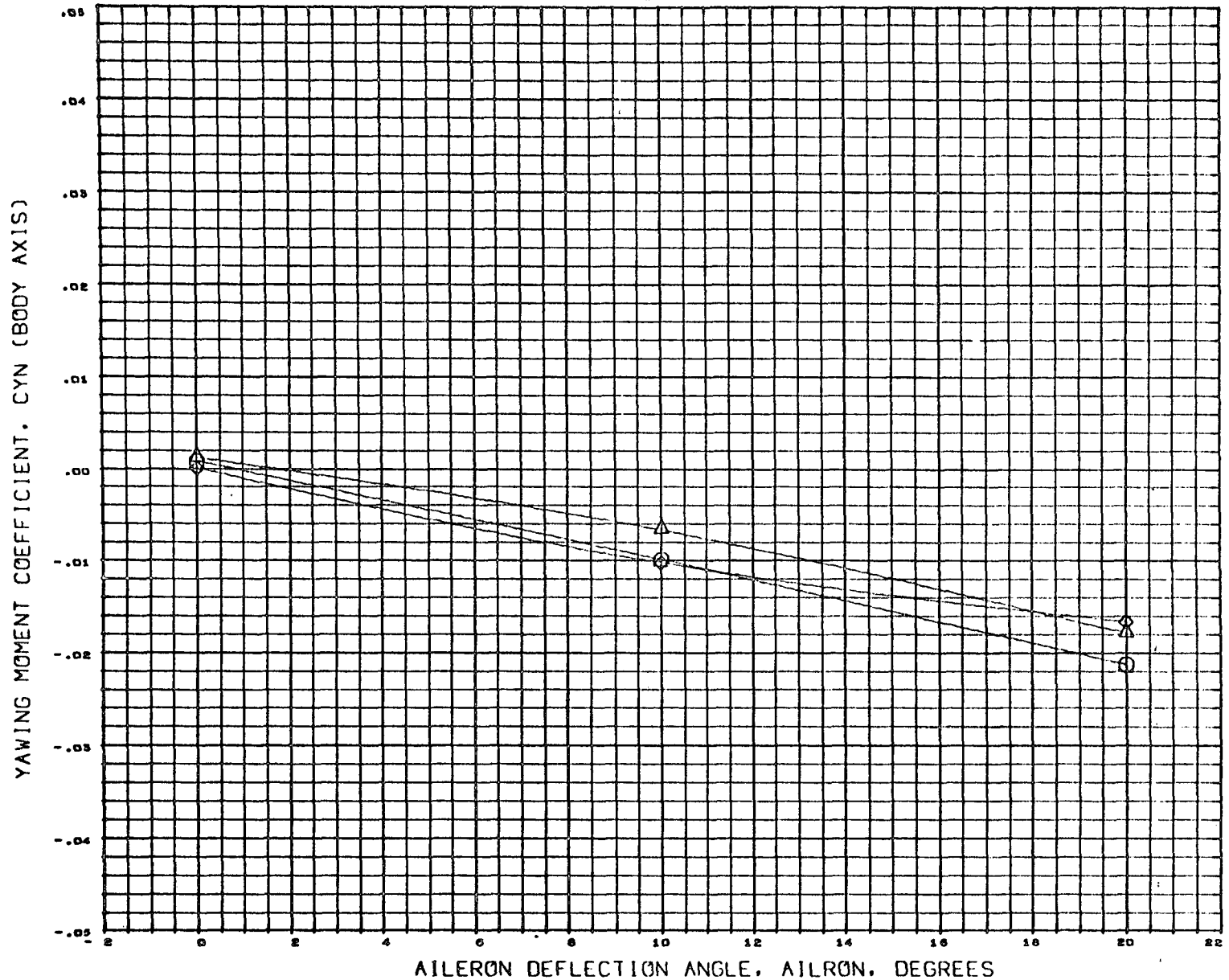
SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	0.000	MACH	0.700	BETA	0.000	SREF	1.3950	60. FT.
△	6.150	INCIDC	3.000	INCIDW	0.000	LREF	3.4530	FEET
◇	15.500	MSFLOW	0.000	CANARD	0.000	BREF	3.4530	FEET
		ELEVTR	0.000	RUDDER	0.000	XMRF	2.9950	FEET
		WNGPOS	1.000	CNDPOS	1.000	YMRF	0.0000	FEET
		DATA HIST. CODE	1*AM			ZMRF	0.0187	FEET
						SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-AILERON CONTROL EFFECTIVENESS



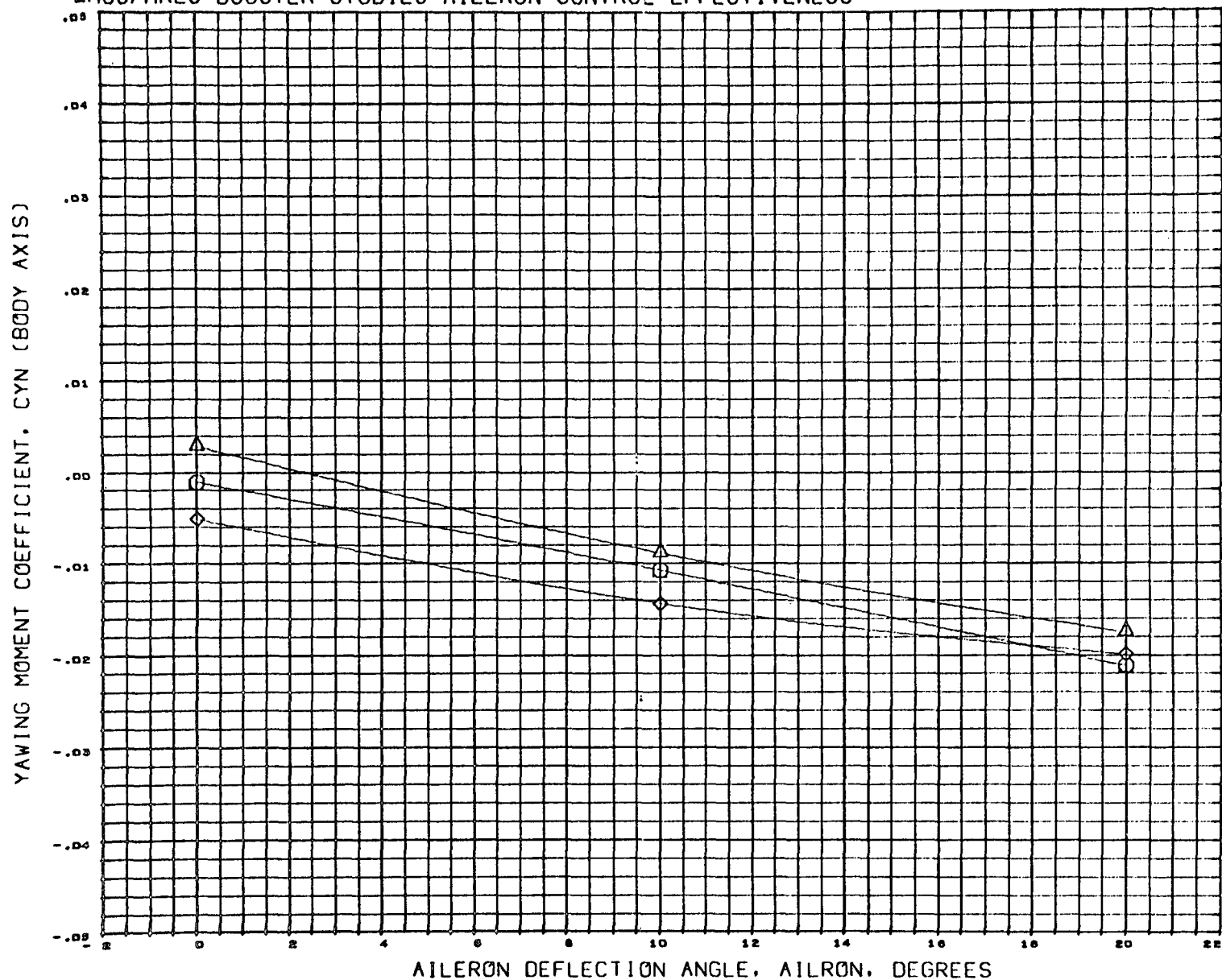
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	ALPHA	MACH	BETA		SREF		
○	0.000	0.000	0.000		1.3550	SQ. FT.	
△	0.250	INCIDC 3.000	INCIDW 0.000		LREF 3.4530	FEET	
◇	0.500	MSFLOW 0.000	CANARD 0.000		BREF 3.4530	FEET	
		LEVTR 0.000	RUDDER 0.000		XMRP 2.3950	FEET	
		ENGPOS 1.000	CNDPOS 1.000		YMRP 0.0000	FEET	
		DATA MIST. CODE 30AM			ZMRP 0.0167	FEET	
					SCALE 0.0150	SCALE	

LMSC/HREC BOOSTER STUDIES-AILERON CONTROL EFFECTIVENESS



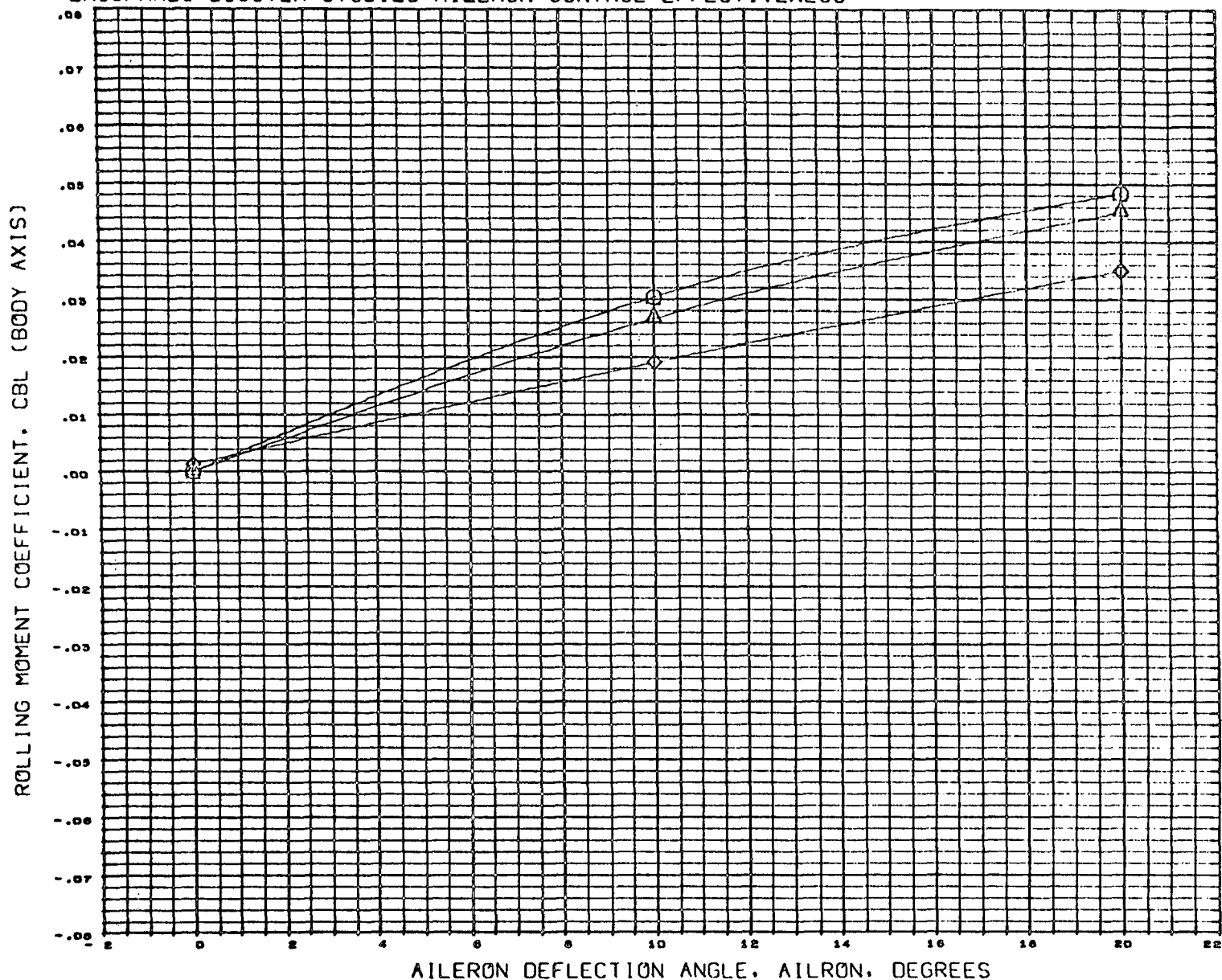
SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	0.000	MACH	0.900	BETA	0.000	SREF	1.3550	SQ.FT.
△	6.150	INCIDC	3.000	INCIDW	0.000	LREF	3.4530	FEET
◇	13.500	MSFLOW	0.000	CANARD	0.000	BREF	3.4530	FEET
		ELEVTR	0.000	RUDDER	0.000	XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000	YMRP	0.0000	FEET
		DATA HIST. CODE	1*AM			ZMRP	0.0167	FEET
						SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-AILERON CONTROL EFFECTIVENESS



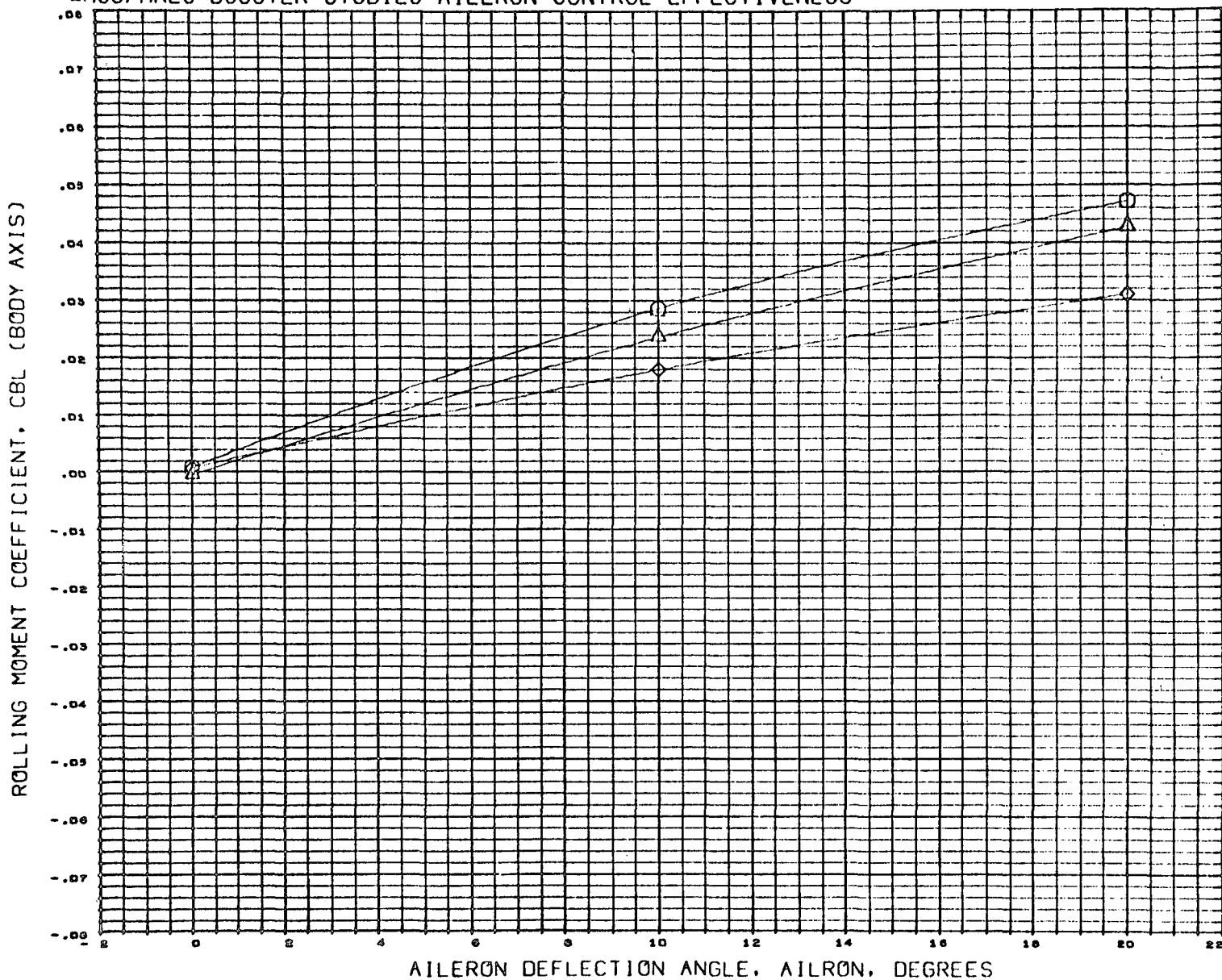
SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	0.000	MASH	1.000	BETA	0.000	BREF	1.3550	50. FT.
△	0.150	INCIDC	3.000	INCIDW	0.000	LREF	3.4530	FEET
◇	19.500	MSFLOW	0.000	CANARD	0.000	BREF	3.4530	FEET
		ELEVTR	0.000	RUDDER	0.000	XMRP	2.5950	FEET
		ENGPOS	1.000	CNDPOS	1.000	YMRP	0.0000	FEET
						ZMRP	0.0167	FEET
						SCALE	0.0150	SCALE
		DATA HIST. CODE	10AM					

LMSC/HREC BOOSTER STUDIES-AILERON CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION	
○	0.000	<u>MACH</u>	0.700	<u>BETA</u>	0.000	SREF	1.3950 SQ.FT.
△	6.150	<u>INCIDC</u>	3.000	<u>INCIDW</u>	0.000	LREF	3.4530 FEET
◇	19.500	<u>MSFLOW</u>	0.000	<u>CANARD</u>	0.000	BREF	3.4530 FEET
		<u>ELEVTR</u>	0.000	<u>RUDDER</u>	0.000	XMRP	2.5950 FEET
		<u>WNGPOS</u>	1.000	<u>CNDPOS</u>	1.000	YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE
		DATA HIST. CODE 1*AH					

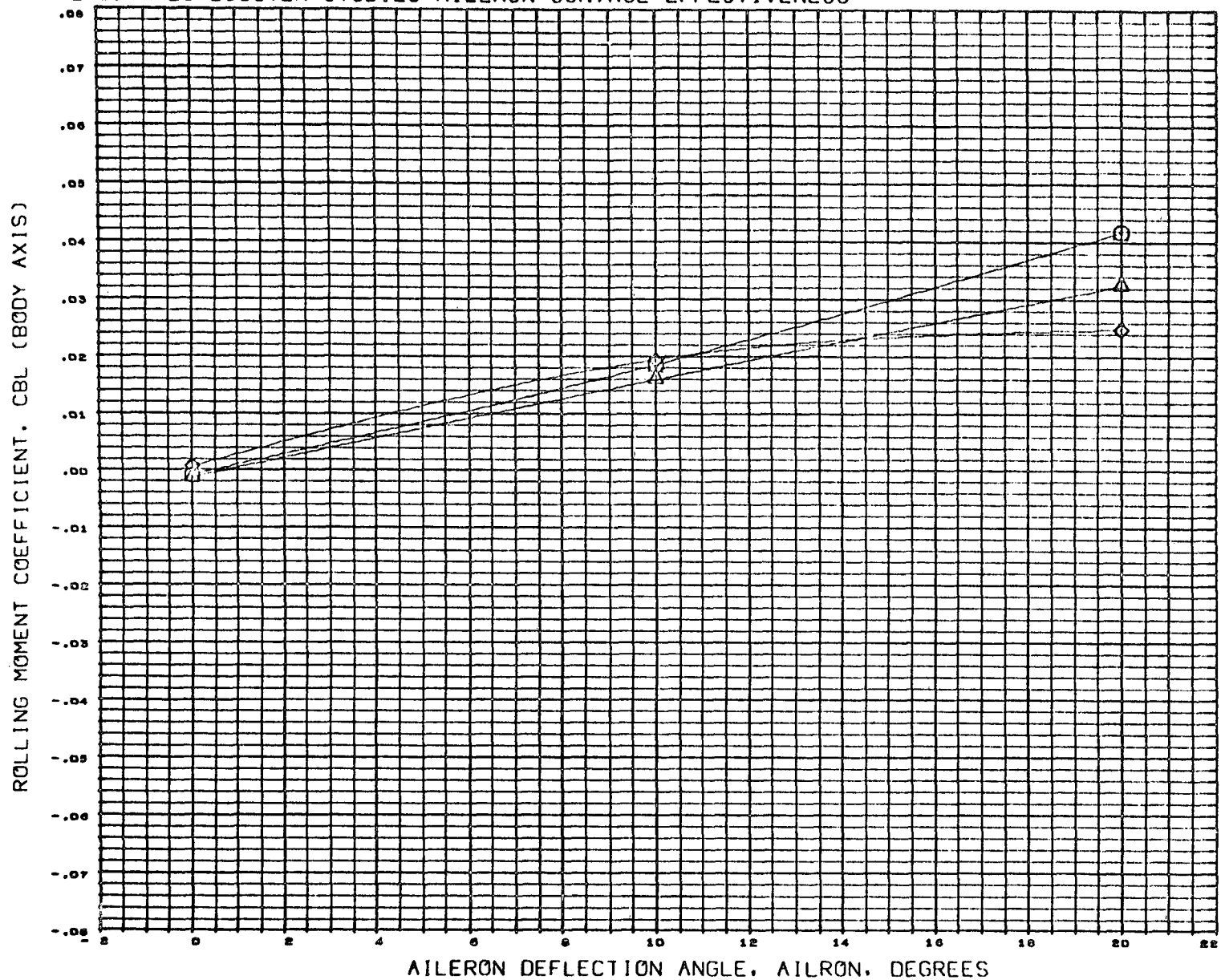
LMSC/HREC BOOSTER STUDIES-AILERON CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES			
○	0.000	MACH	0.000	BETA	0.000
△	0.190	INCIDC	3.000	INCIDW	0.000
◇	15.500	MSFLOW	0.000	CANARD	0.000
		ELEVTR	0.000	RUDDER	0.000
		WNGPOS	1.000	CNDPOS	1.000
		DATA HIST. CODE	1*AM		

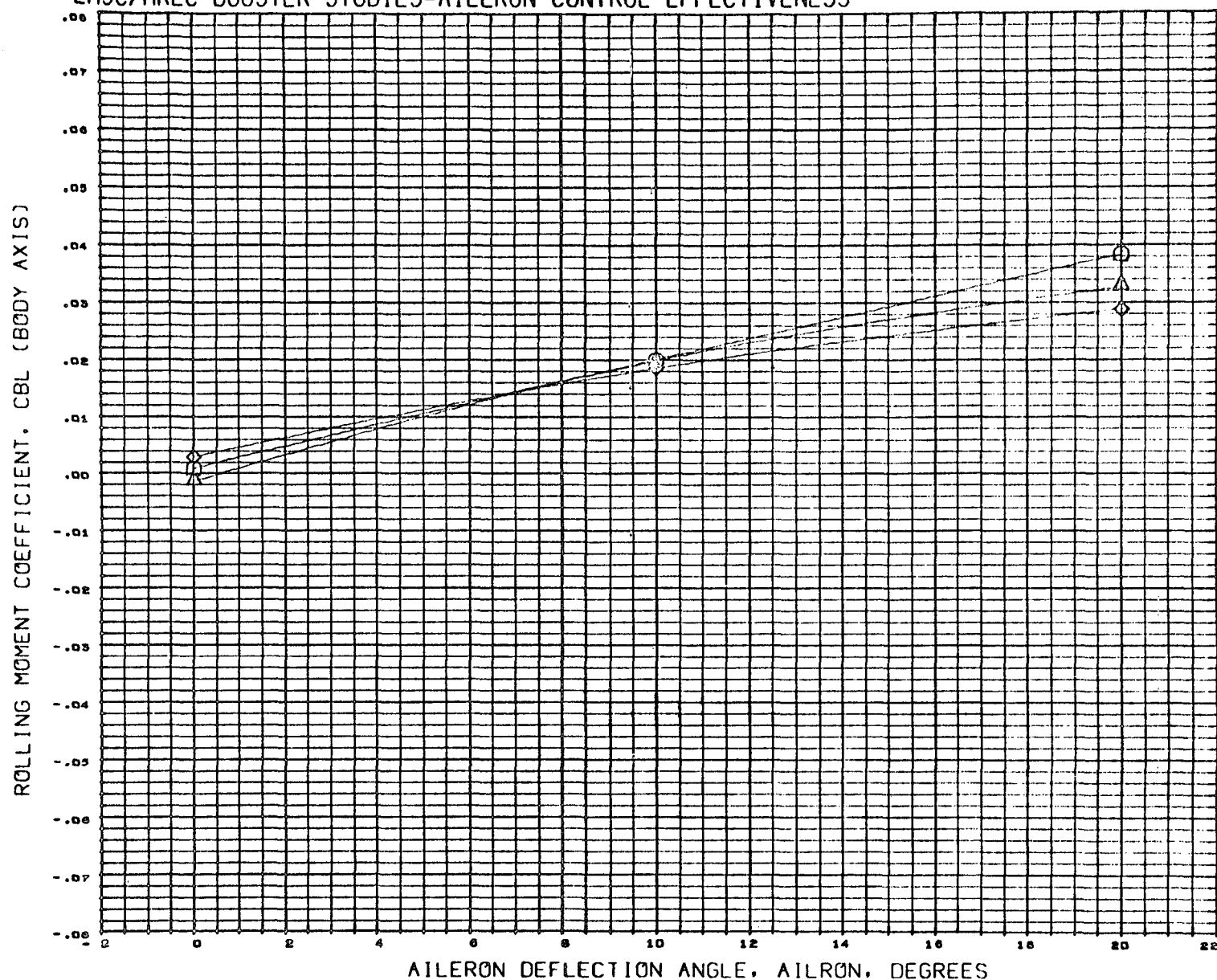
REFERENCE INFORMATION		
SREF	1.3550	50.FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0167	FEET
SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-AILERON CONTROL EFFECTIVENESS



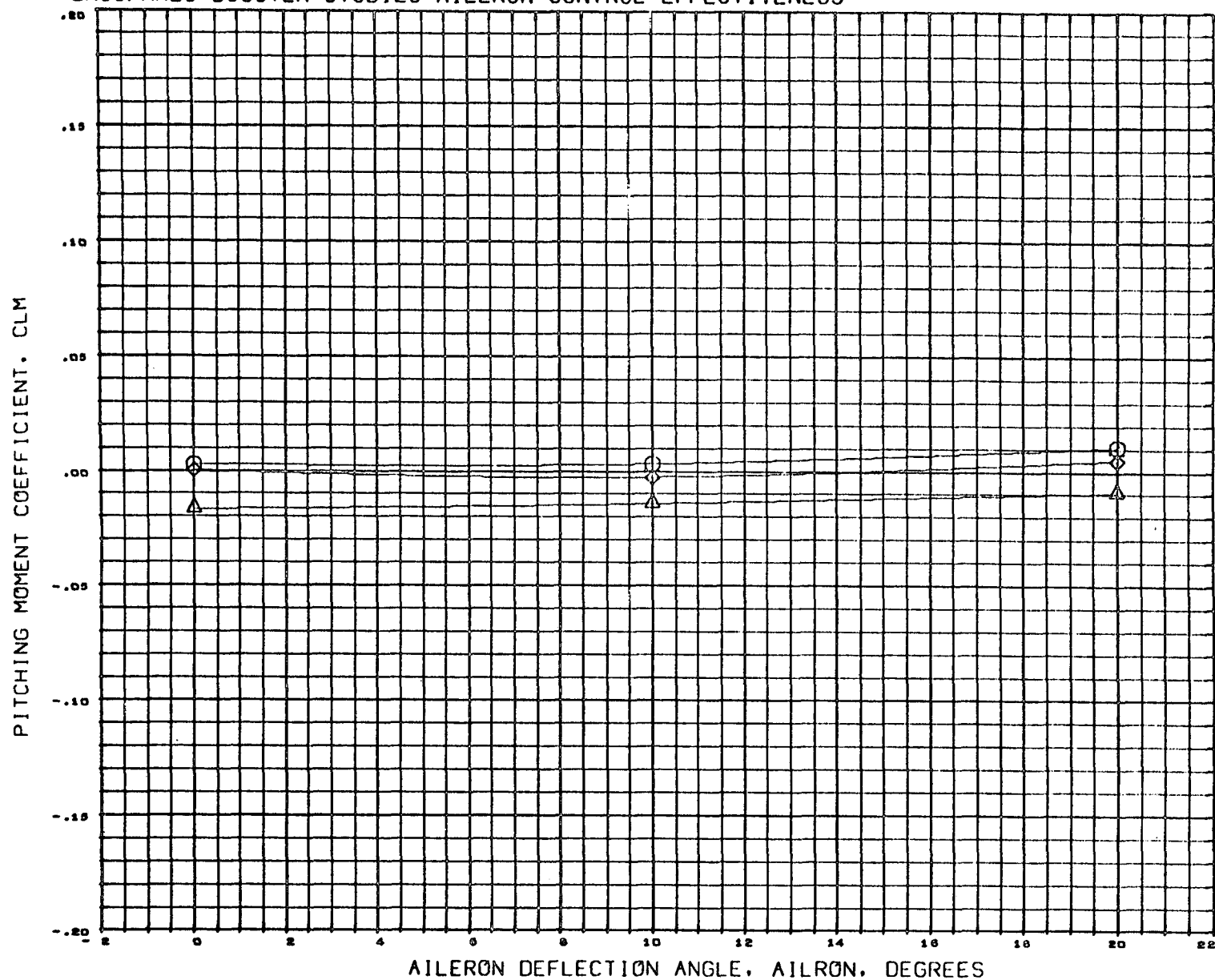
SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION	
		MACH	BETA	INCIDC	INCIDW		
○	0.000	0.000	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
△	6.350	0.000	0.000	0.000	0.000	LREF	3.4530 FEET
◇	15.500	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
		0.000	0.000	0.000	0.000	XMRP	2.5950 FEET
		0.000	0.000	0.000	0.000	YMRP	0.0000 FEET
		1.000	1.000	0.000	1.000	ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE
		DATA HIST. CODE 1*AM					

LMSC/HREC BOOSTER STUDIES-AILERON CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	0.000	MACH	1.000	BETA	0.000	SREF	1.3550	SQ. FT.
△	0.150	INCIDC	3.000	INCIDW	0.000	LREF	3.4530	FEET
◇	15.500	MSFLOW	0.000	CANARD	0.000	BREF	3.4530	FEET
		ELEVTR	0.000	RUDDER	0.000	XMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000	YMRP	0.0000	FEET
		DATA HIST. CODE	1*AM			ZMRP	0.0167	FEET
						SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-AILERON CONTROL EFFECTIVENESS

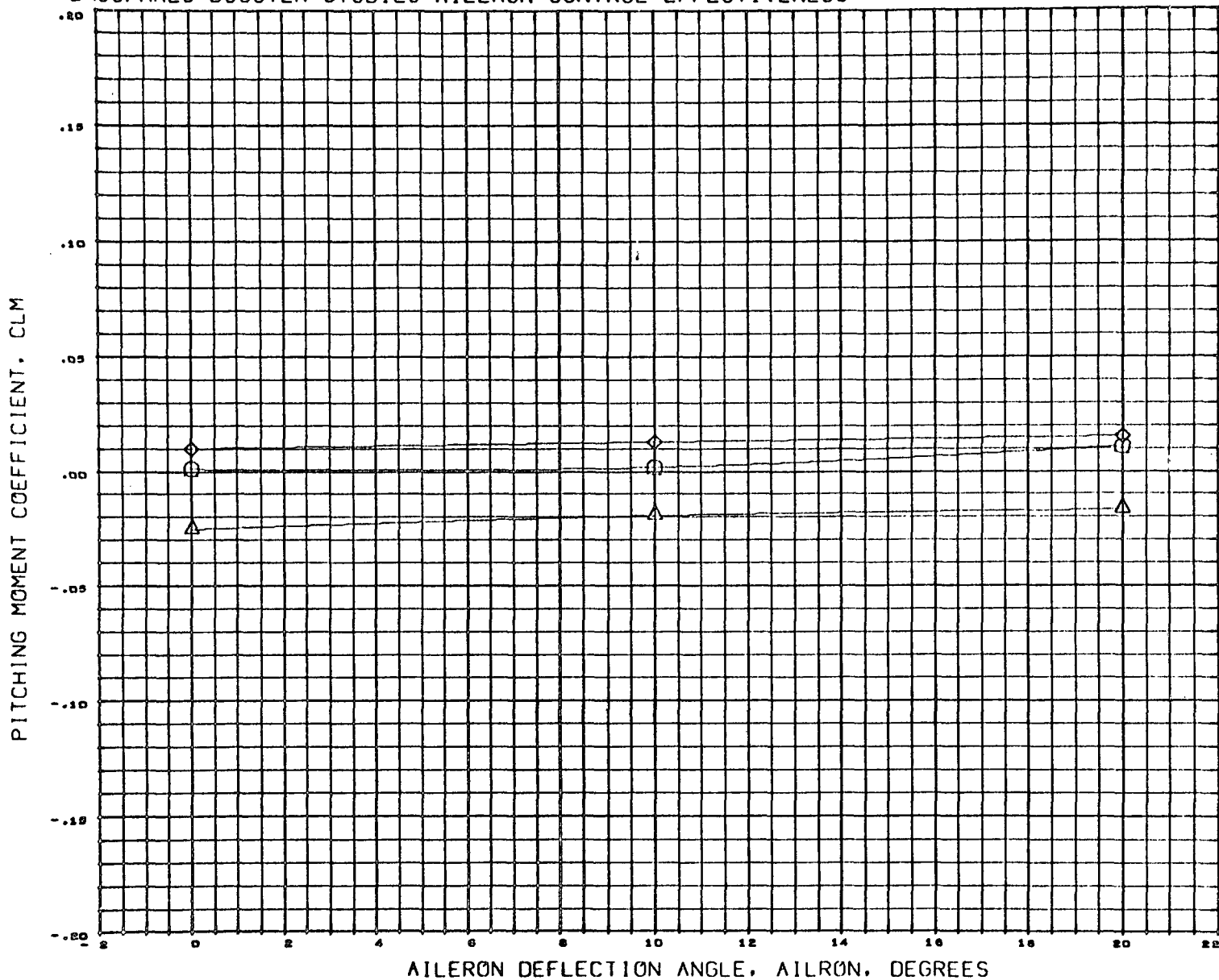


SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	0.000	<u>MACH</u>	0.700	<u>BETA</u>	0.000	SREF	1.3550	80. FT.
△	0.150	<u>INCIDC</u>	3.000	<u>INCIDW</u>	0.000	LREF	3.4530	FEET
◇	15.500	<u>MSFLOW</u>	0.000	<u>CANARD</u>	0.000	BREF	3.4530	FEET
		<u>ELEVTR</u>	0.000	<u>RUDDER</u>	0.000	XMRP	2.5950	FEET
		<u>WNGPOS</u>	1.000	<u>CNDPOS</u>	1.000	YMRP	0.0000	FEET
		<u>DATA HIST. CODE</u>	1*AM			ZMRP	0.0167	FEET
						SCALE	0.0150	SCALE

NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1

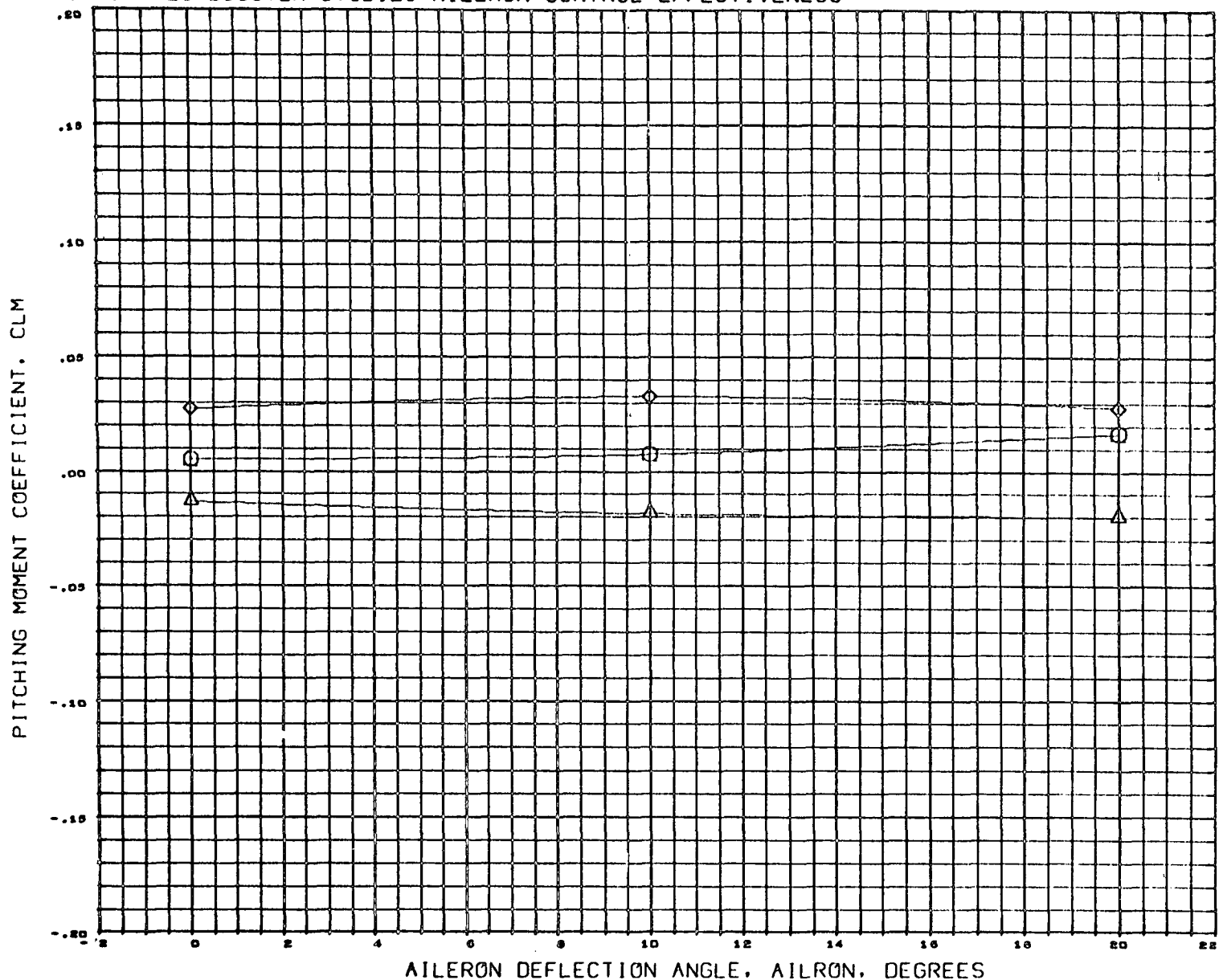
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LMSC/HREC BOOSTER STUDIES-AILERON CONTROL EFFECTIVENESS



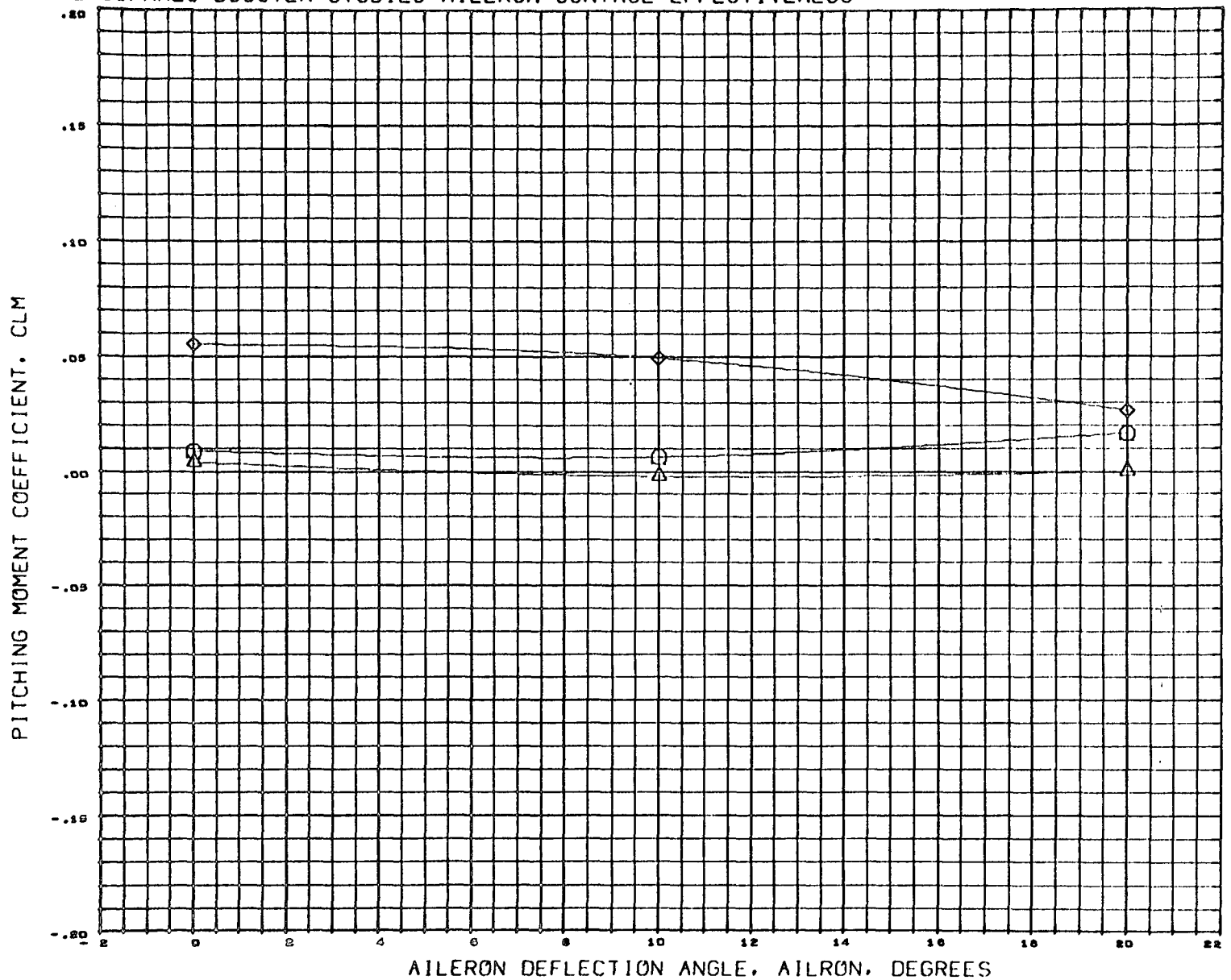
SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	0.000	<u>MACH</u>	0.800	<u>DELTA</u>	0.000	<u>SRF</u>	1.3550	80. FT.
△	0.150	<u>INCIDC</u>	3.000	<u>INCIDW</u>	0.000	<u>LRF</u>	3.4530	FEET
◇	15.900	<u>MSFLOW</u>	0.000	<u>CANARD</u>	0.000	<u>DRF</u>	3.4530	FEET
		<u>ELEVTR</u>	0.000	<u>RUDDER</u>	0.000	<u>XMRP</u>	2.9950	FEET
		<u>WNGPOS</u>	1.000	<u>CNDPOS</u>	1.000	<u>YMRP</u>	0.0000	FEET
		<u>DATA HIST. CODE</u>	19AM			<u>ZMRP</u>	0.0187	FEET
						<u>SCALE</u>	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-AILERON CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	0.000	<u>MACH</u>	0.900	<u>BETA</u>	0.000	SREF	1.3950	80.FT.
△	0.190	<u>INCIDC</u>	3.000	<u>INCIDW</u>	0.000	LREF	3.4930	FEET
◇	19.500	<u>MSFLOW</u>	0.000	<u>CANARD</u>	0.000	BREF	3.4930	FEET
		<u>ELEVTR</u>	0.000	<u>RUDDER</u>	0.000	XMRP	2.5050	FEET
		<u>WNGPOS</u>	1.000	<u>CNDPOS</u>	1.000	YMRP	0.0000	FEET
						ZMRP	0.0187	FEET
						SCALE	0.0150	SCALE
		DATA HIST. CODE 1*AM						

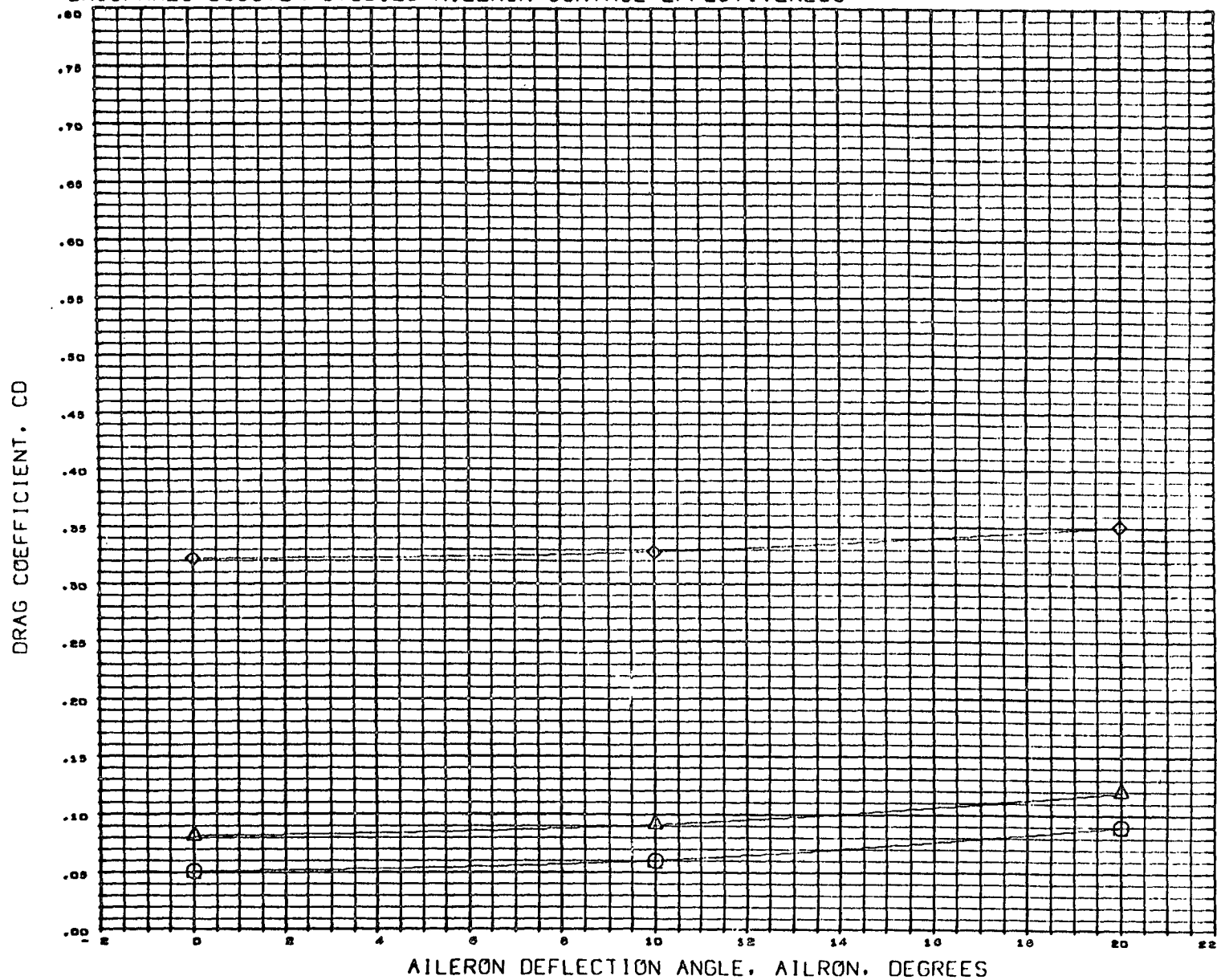
LMSC/HREC BOOSTER STUDIES-AILERON CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES			
○	0.000	<u>MACH</u>	1.000	<u>BETA</u>	0.000
△	0.190	<u>INCIDC</u>	3.000	<u>INCIDW</u>	0.000
◇	19.900	<u>MSFLOW</u>	0.000	<u>CANARD</u>	0.000
		<u>ELEVTR</u>	0.000	<u>RUDDER</u>	0.000
		<u>WINGPOS</u>	1.000	<u>CNDPOS</u>	1.000
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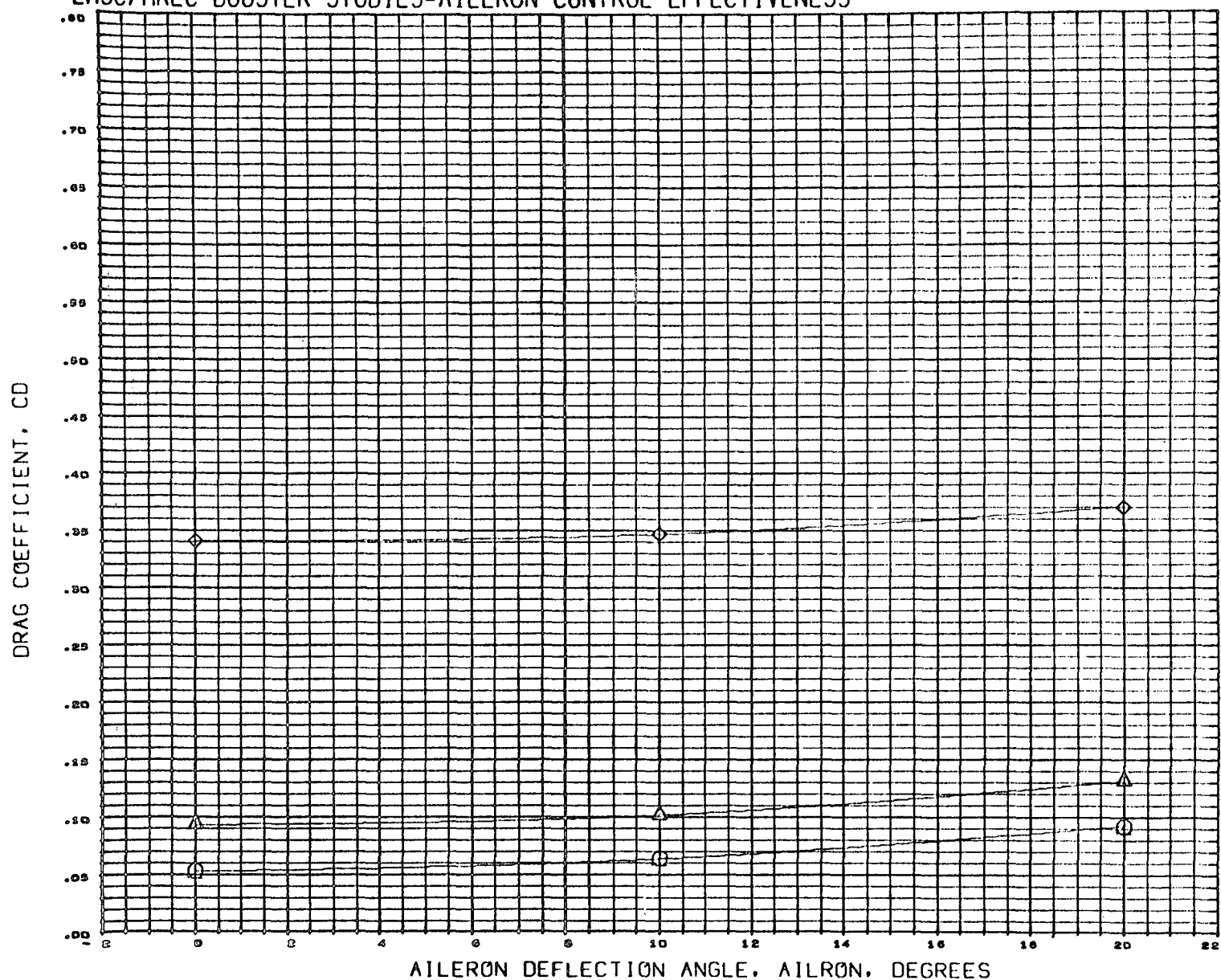
REFERENCE INFORMATION		
SREF	1.3550	SQ.FT.
LREF	3.4530	FEET
SREF	3.4530	FEET
XMRP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0167	FEET
SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-AILERON CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	0.000	MACH	0.700	BETA	0.000	SREF	1.3950	SQ. FT.
△	0.150	INCIDC	3.000	INCIDW	0.000	LREF	3.4530	FEET
◇	15.500	MSFLOW	0.000	CANARD	0.000	SREF	3.4530	FEET
		ELEVTR	0.000	RUDDER	0.000	YMRP	2.5950	FEET
		WNGPOS	1.000	CNDPOS	1.000	ZMRP	0.0000	FEET
		DATA HIST. CODE	1*AM			ZMRP	0.0107	FEET
						SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-AILERON CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES			
○	0.000	MACH	0.000	BETA	0.000
△	0.190	INCIDC	0.000	INCIDW	0.000
◇	19.900	MSFLOW	0.000	CANARD	0.000
		ELEVTR	0.000	RUDDER	0.000
		WNGPOS	1.000	CNDPOS	1.000
		DATA HIST. CODE 14AM			

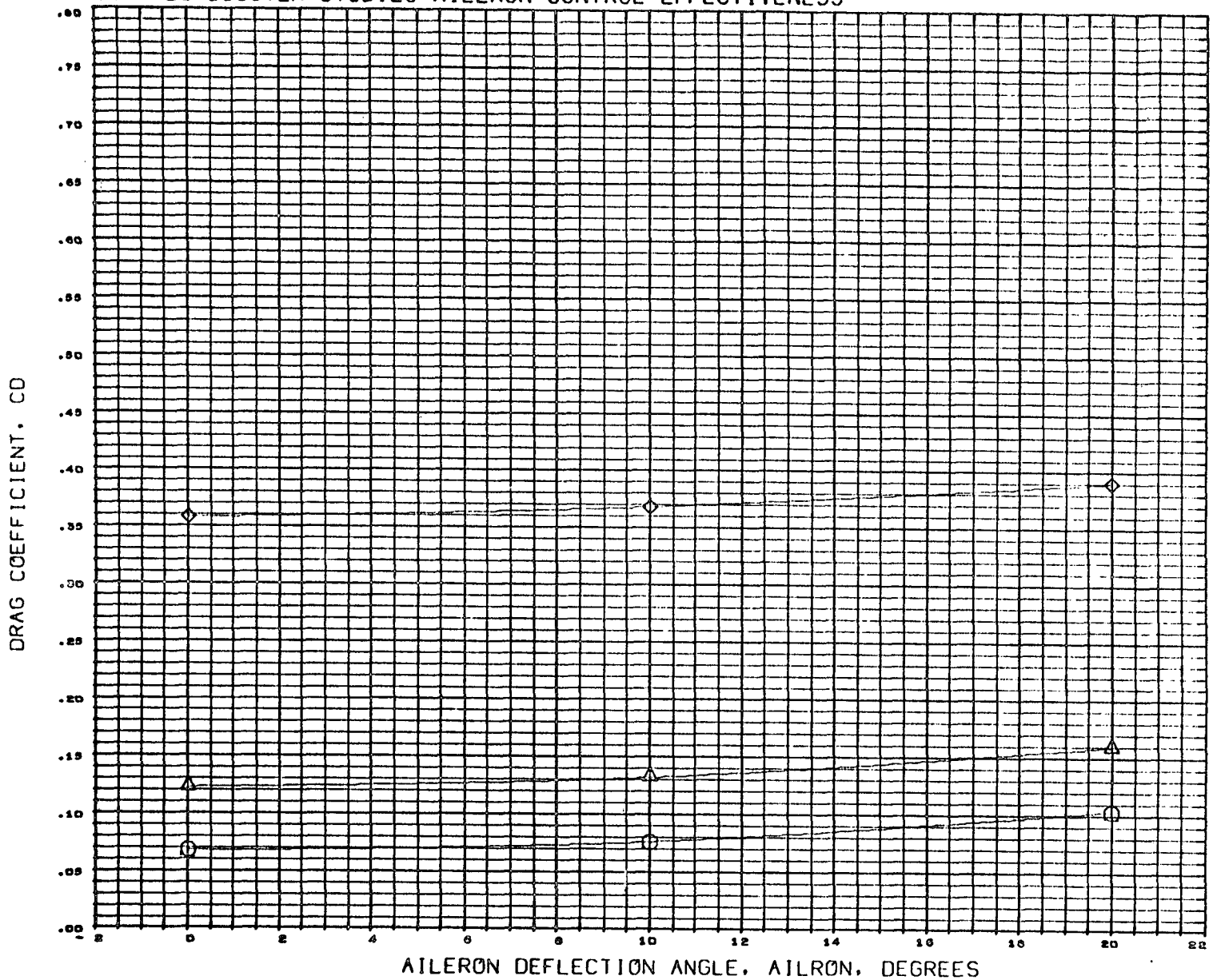
REFERENCE INFORMATION		
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LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.5050	FEET
YMRP	0.0000	FEET
ZMRP	0.0167	FEET
SCALE	0.0150	SCALE

NSRDC-3210.MSFC/LMSC BOOSTER B1C2F2W1V1

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LMSC/HREC BOOSTER STUDIES-AILERON CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	0.000	<u>MACH</u>	0.900	<u>BETA</u>	0.000	BREF	1.3550	80.FT.
△	0.150	<u>INCIDC</u>	3.000	<u>INCIDW</u>	0.000	LREF	3.4530	FEET
◇	15.500	<u>MSFLOW</u>	0.000	<u>CANARD</u>	0.000	BREF	3.4530	FEET
		<u>ELEVTR</u>	0.000	<u>RUDDER</u>	0.000	XMRP	2.9950	FEET
		<u>WNGPOS</u>	1.000	<u>CNDPOS</u>	1.000	YMRP	0.0000	FEET
						ZMRP	0.0167	FEET
						SCALE	0.0150	SCALE
		DATA HIST. CODE 1*AM						

LMSC/HREC BOOSTER STUDIES-AILERON CONTROL EFFECTIVENESS



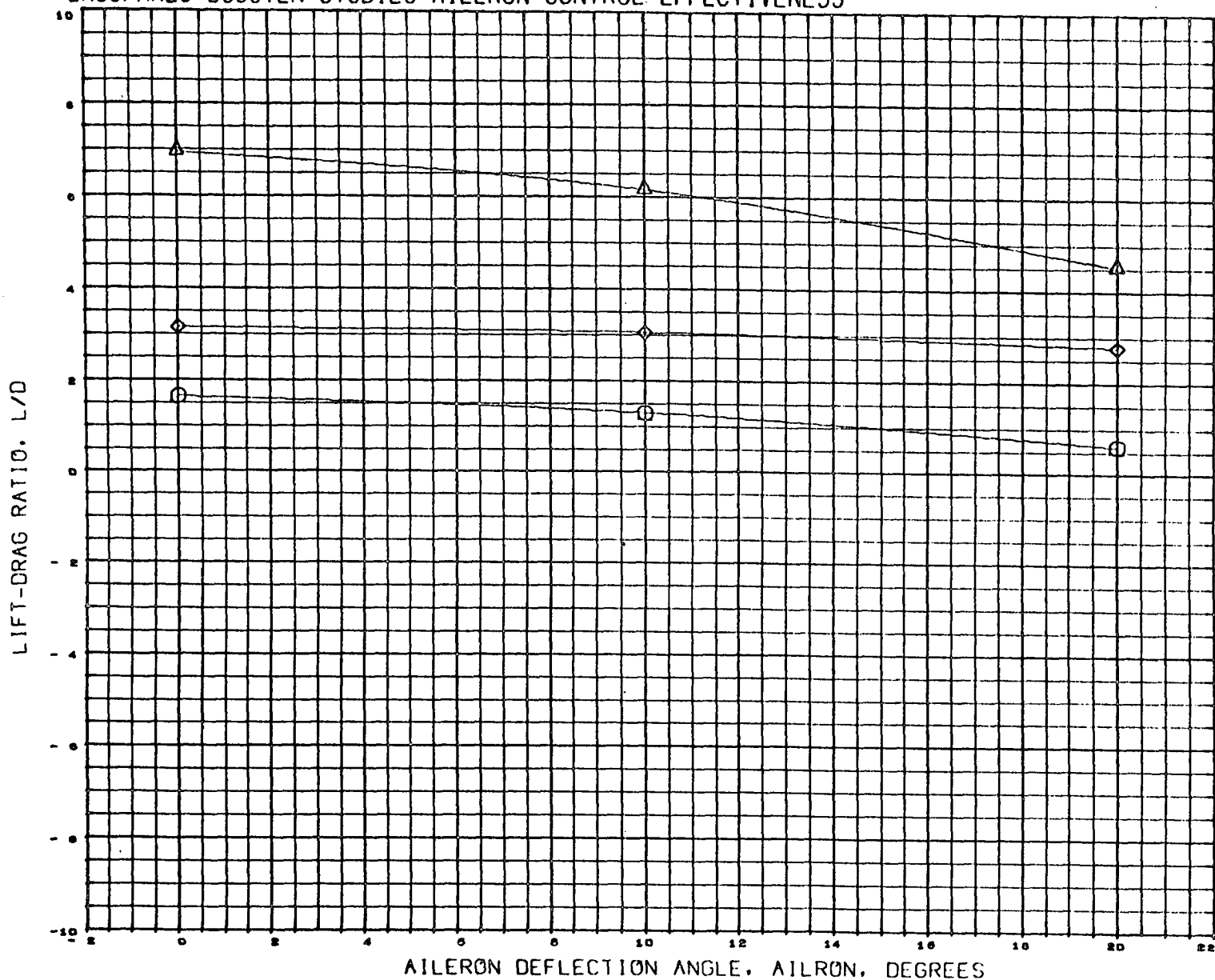
SYMBOL	ALPHA	PARAMETRIC VALUES			
○	0.000	MASH	1.000	BETA	0.000
△	0.190	INCIDC	3.000	INCIDW	0.000
◇	19.500	MSFLOW	0.000	CANARD	0.000
		ELEVTR	0.000	RUDDER	0.000
		ENGPOS	1.000	CNDPOS	1.000
		DATA HIST. CODE 10AM			

REFERENCE INFORMATION		
SREF	1.3550	80.FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.9950	FEET
YMRP	0.0000	FEET
ZMRP	0.0187	FEET
SCALE	0.0150	SCALE

NSRDC-3210.MSFC/LMSC BOOSTER B1C2F2W1V1

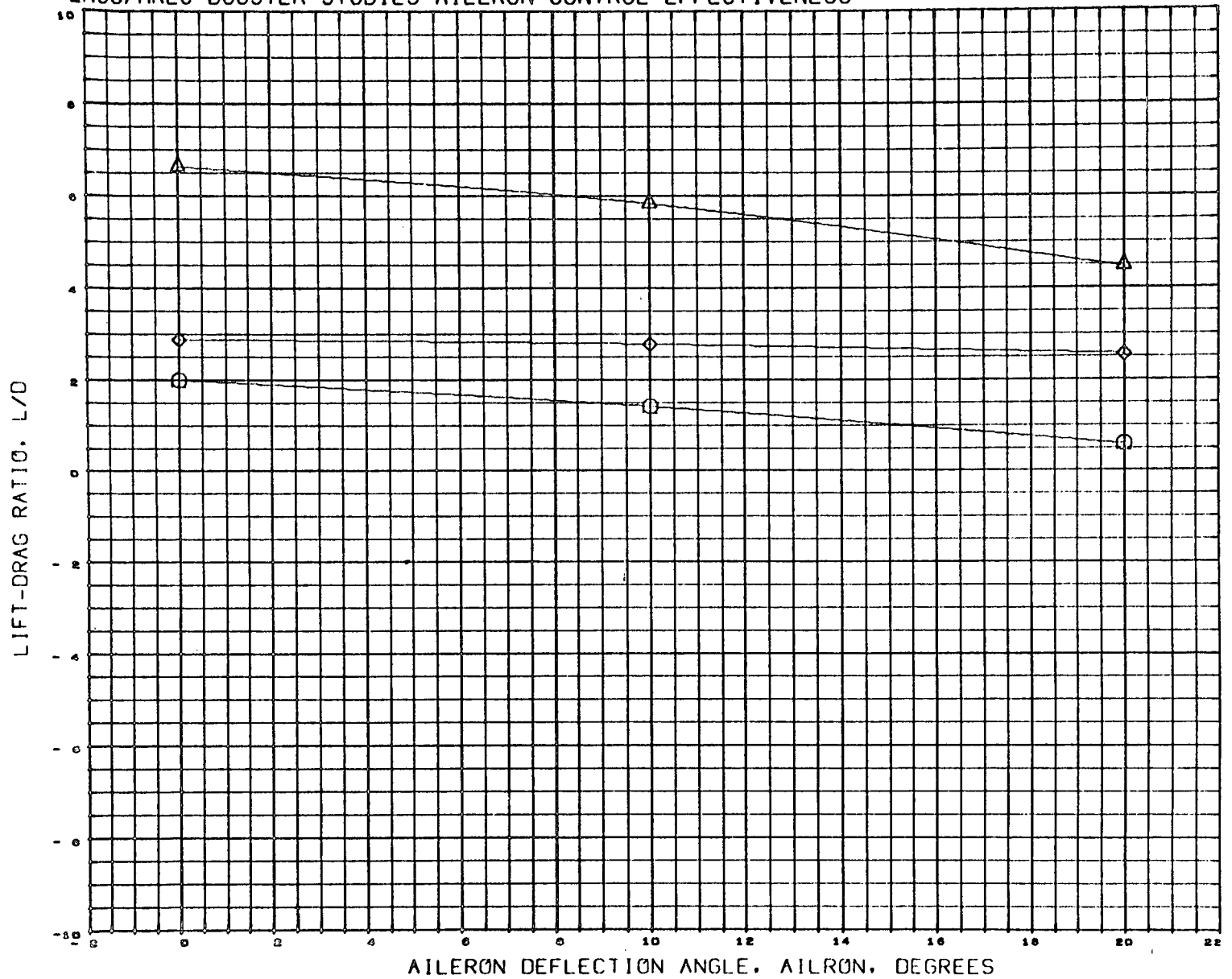
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LMSC/HREC BOOSTER STUDIES-AILERON CONTROL EFFECTIVENESS



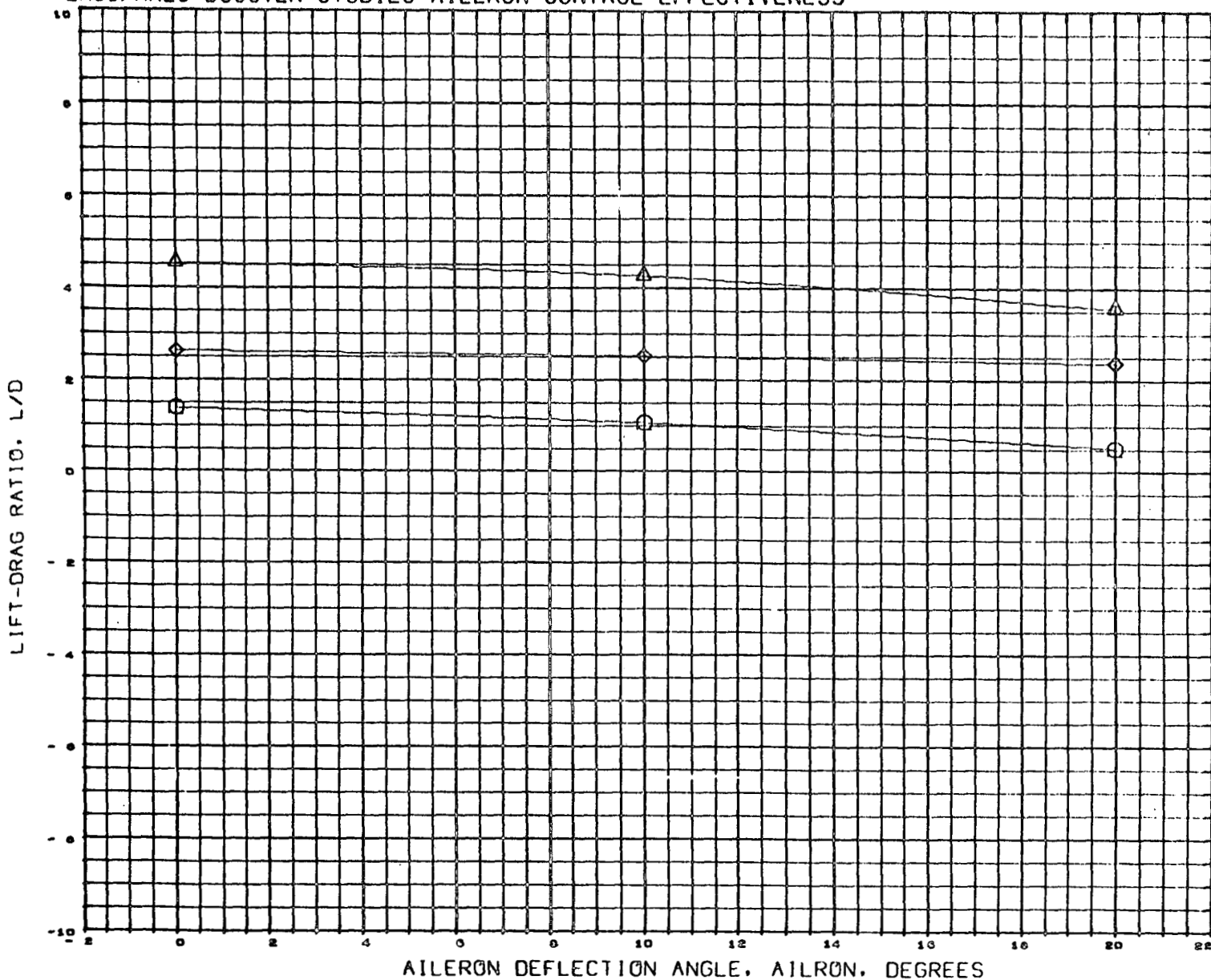
SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	0.000	MACH	0.700	BETA	0.000	SREF	1.3550	50. FT.
△	6.150	INCIDC	3.000	INCIDW	0.000	LREF	3.4530	FEET
◇	15.500	MSFLOW	0.000	CANARD	0.000	BREF	3.4530	FEET
		ELEVTR	0.000	RUDDER	0.000	XMRP	2.5050	FEET
		WNGPOS	1.000	CNDPOS	1.000	YMRP	0.0000	FEET
						ZMRP	0.0167	FEET
		DATA HIST. CODE	1*AM			SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-AILERON CONTROL EFFECTIVENESS



SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	0.000	MACH	0.000	BETA	0.000	SRF	1.3550	89.71.
△	0.190	INCIDC	3.000	INCIDW	0.000	LREF	3.4530	FEET
◇	19.500	MSFLOW	0.000	CANARD	0.000	BREF	3.4630	FEET
		ELEVTR	0.000	RUDDER	0.000	XMRP	2.9950	FEET
		WNGPOS	1.000	CNDPOS	1.000	YMRP	0.0000	FEET
		DATA HIST. CODE	10AM			ZMRP	0.0167	FEET
						SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-AILERON CONTROL EFFECTIVENESS



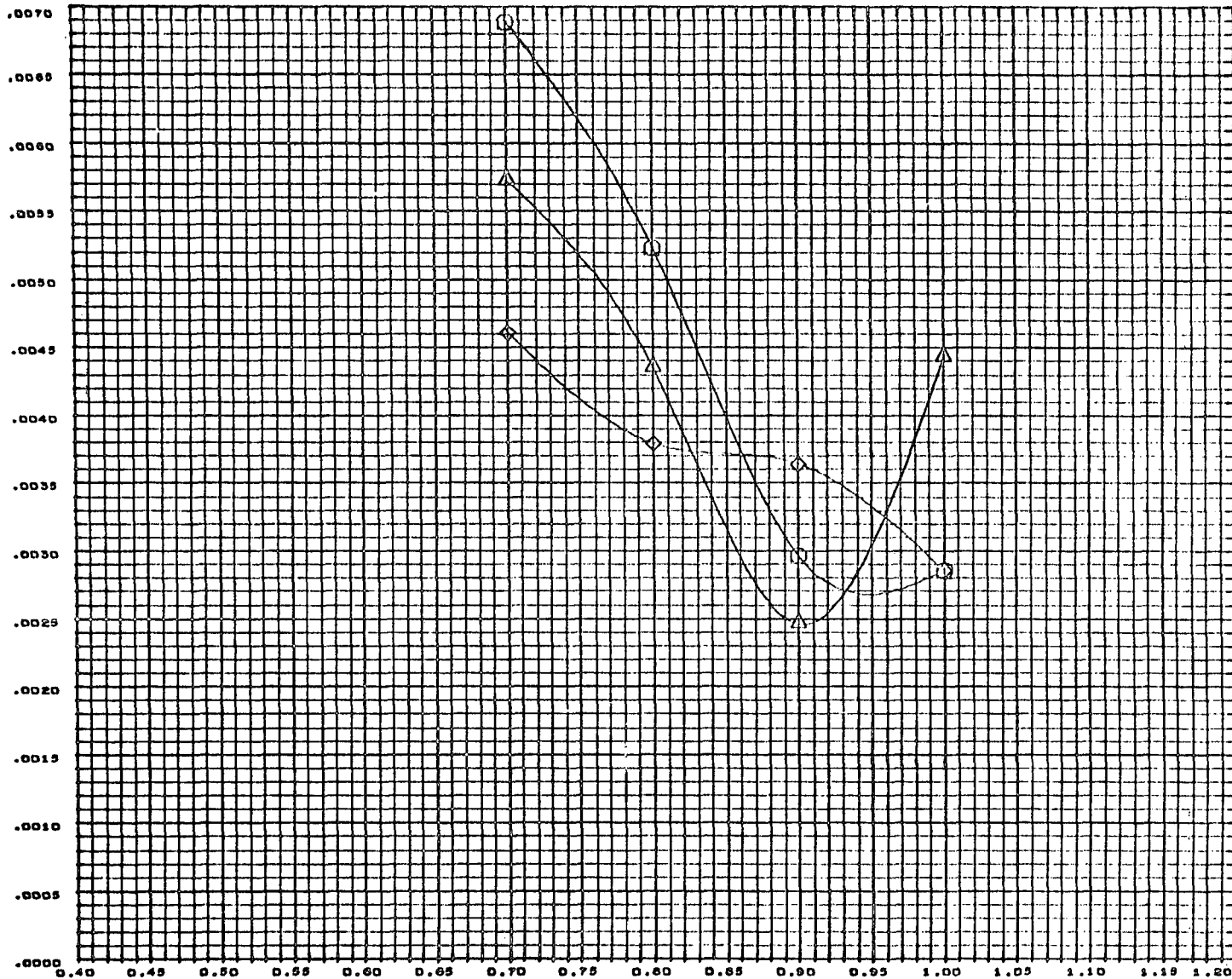
SYMBOL	ALPHA		PARAMETRIC VALUES				REFERENCE INFORMATION		
	0.000	15.500	MACH	0.900	BETA	0.000	BREF	1.3550	80. FT.
○	0.000		INCIDC	3.000	INCIDW	0.000	LREF	3.4530	FEET
△	0.150		M8FLOW	0.000	CANARD	0.000	BREF	3.4530	FEET
◇	15.500		ELEVTR	0.000	RUDDER	0.000	XMRP	2.5050	FEET
			WNGPOS	1.000	CNDPOS	1.000	YMRP	0.0000	FEET
			DATA HIST. CODE	10AM			ZMRP	0.0167	FEET
							SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-AILERON CONTROL EFFECTIVENESS



SYMBOL	PARAMETRIC VALUES				REFERENCE INFORMATION		
	ALPHA	MACH	BETA				
○	0.000	1.000	0.000		SREF	1.3550	80.FT.
△	0.190	3.000	0.000		LREF	3.4530	FEET
◇	19.900	0.000	0.000		SREF	3.4530	FEET
		MSFLOW	CANARD		XMRF	2.9950	FEET
		ELEVTR	0.000	RUDDER	0.0000	FEET	
		WNGPOS	1.000	CNDPOS	1.000	FEET	
		DATA HIST. CODE	1*AM		ZMRF	0.0187	FEET
					SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-AILERON CONTROL EFFECTIVENESS VERSUS MACH NUMBER



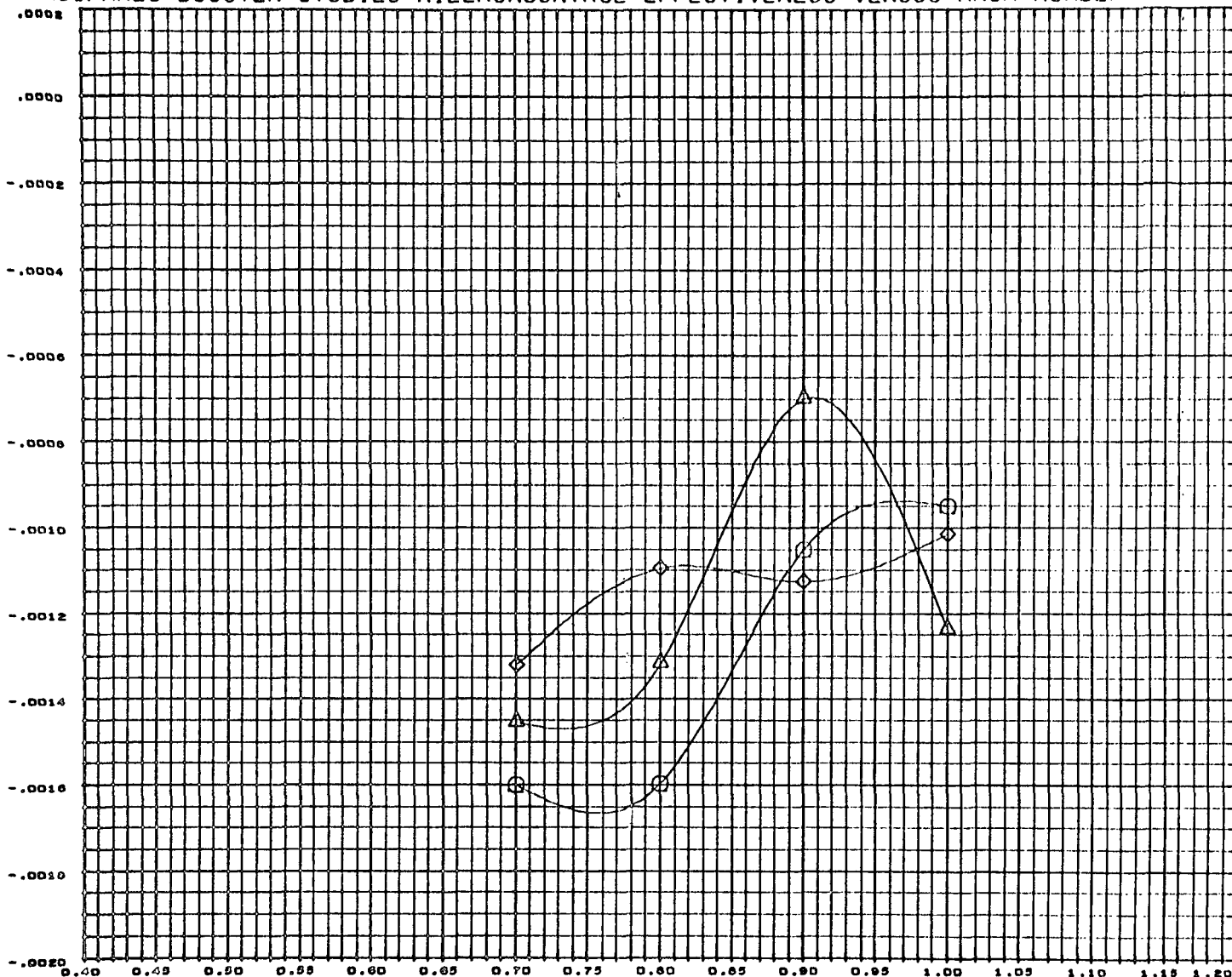
MACH NUMBER

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(DN3007)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.062	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(DN3008)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.179	0.000	0.000	0.000	LREF	3.4530 FEET
(DN3009)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.507	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0190 SCALE

BETA 0.000

LMSC/HREC BOOSTER STUDIES-AILERON CONTROL EFFECTIVENESS VERSUS MACH NUMBER

YAWING MOMENT DUE TO AILERON, DCYND, PER DEGREE, (BODY AXIS)



MACH NUMBER

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(DN3007) ○	N8RDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1
(DN3008) △	N8RDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1
(DN3009) ◇	N8RDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1

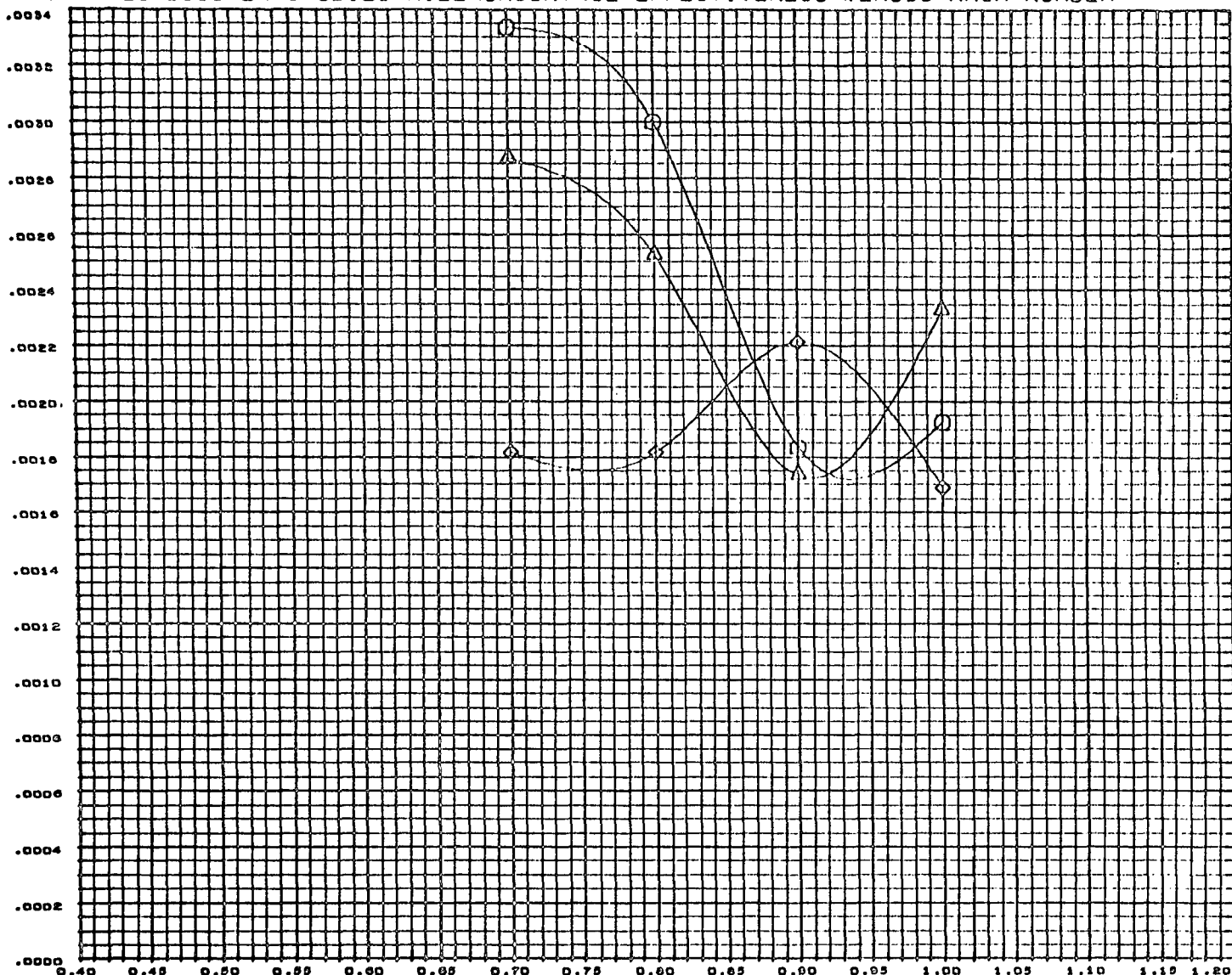
ALPHA	ELEVTR	AILRON	RUDDER
0.062	0.000	0.000	0.000
6.179	0.000	0.000	0.000
15.907	0.000	0.000	0.000

REFERENCE INFORMATION		
SREF	1.3550	SQ. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.9950	FEET
YMRP	0.0000	FEET
ZMRP	0.0167	FEET
SCALE	0.0150	SCALE

BETA 0.000

LMSC/HREC BOOSTER STUDIES-AILERON CONTROL EFFECTIVENESS VERSUS MACH NUMBER

ROLLING MOMENT DUE TO AILERON, DCBLDA, PER DEGREE, (BODY AXIS)



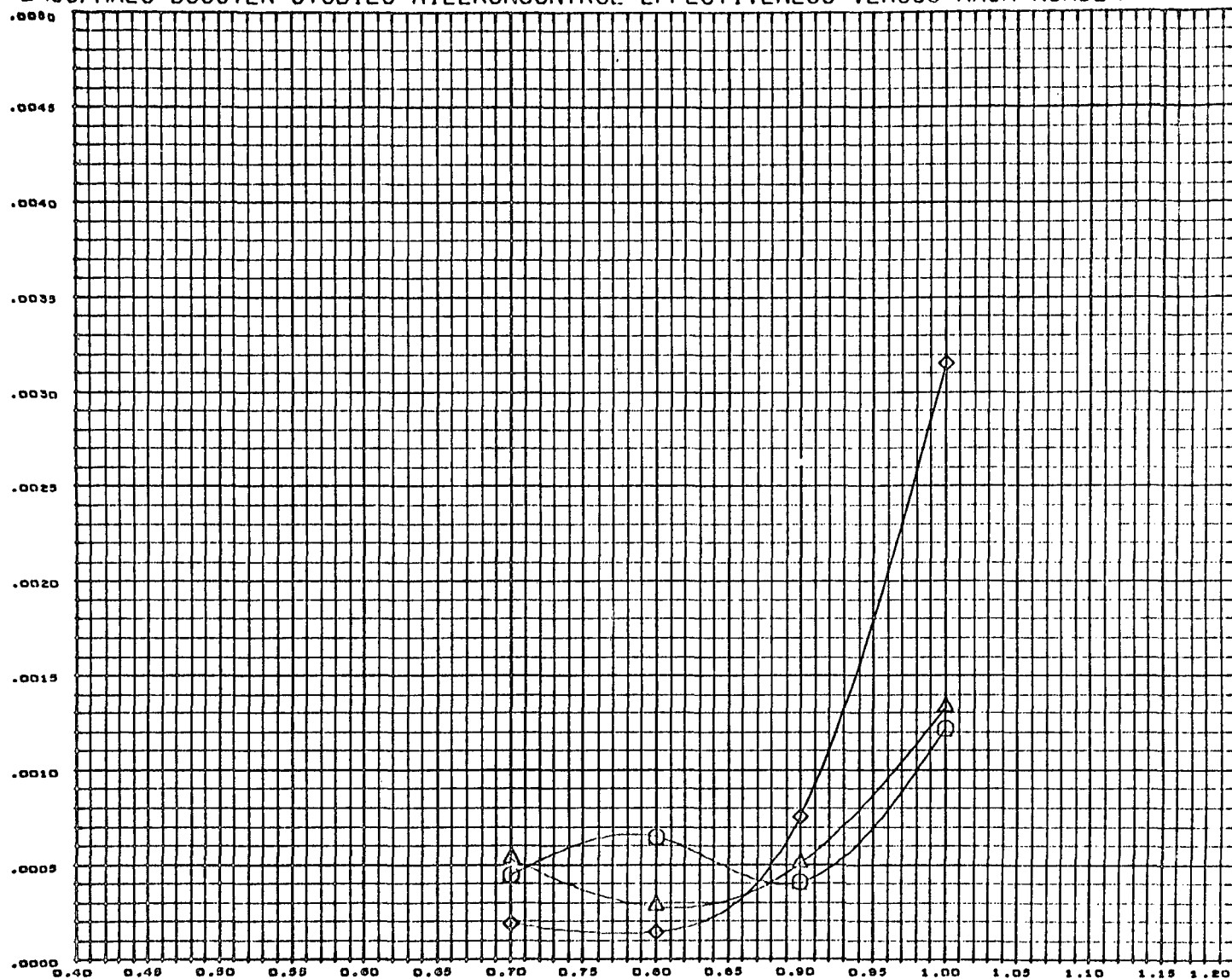
MACH NUMBER

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(DN3007)	N5RDC-3210,MSFC/LM8C BOOSTER B1C2F2W1V1	0.062	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(DN3008)	N5RDC-3210,MSFC/LM8C BOOSTER B1C2F2W1V1	0.179	0.000	0.000	0.000	LREF	3.4530 FEET
(DN3009)	N5RDC-3210,MSFC/LM8C BOOSTER B1C2F2W1V1	15.507	0.000	0.000	0.000	DREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

BETA 0.000

LMSC/HREC BOOSTER STUDIES-AILERON CONTROL EFFECTIVENESS VERSUS MACH NUMBER

DRAG DUE TO AILERON, DCD/DA, PER DEGREE



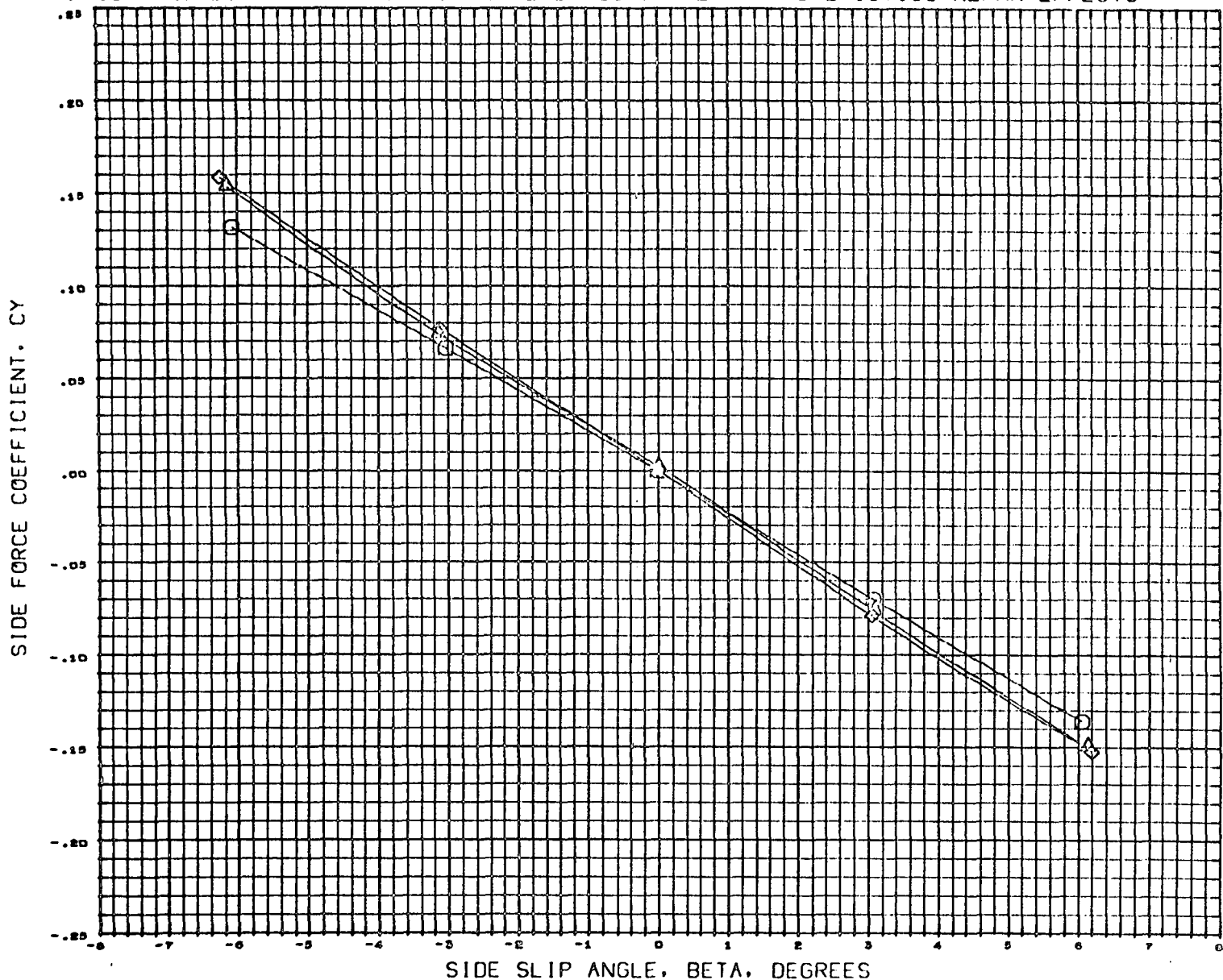
MACH NUMBER

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(DN3007) ○	NBRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1
(DN3008) △	NBRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1
(DN3009) ◇	NBRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1

ALPHA	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
0.062	0.000	0.000	0.000	SREF 1.3550 SQ. FT.
6.179	0.000	0.000	0.000	LREF 3.4530 FEET
15.507	0.000	0.000	0.000	BREF 3.4530 FEET
				XMRP 2.5950 FEET
				YMRP 0.0000 FEET
				ZMRP 0.0167 FEET
				SCALE 0.0150 SCALE

BETA 0.000

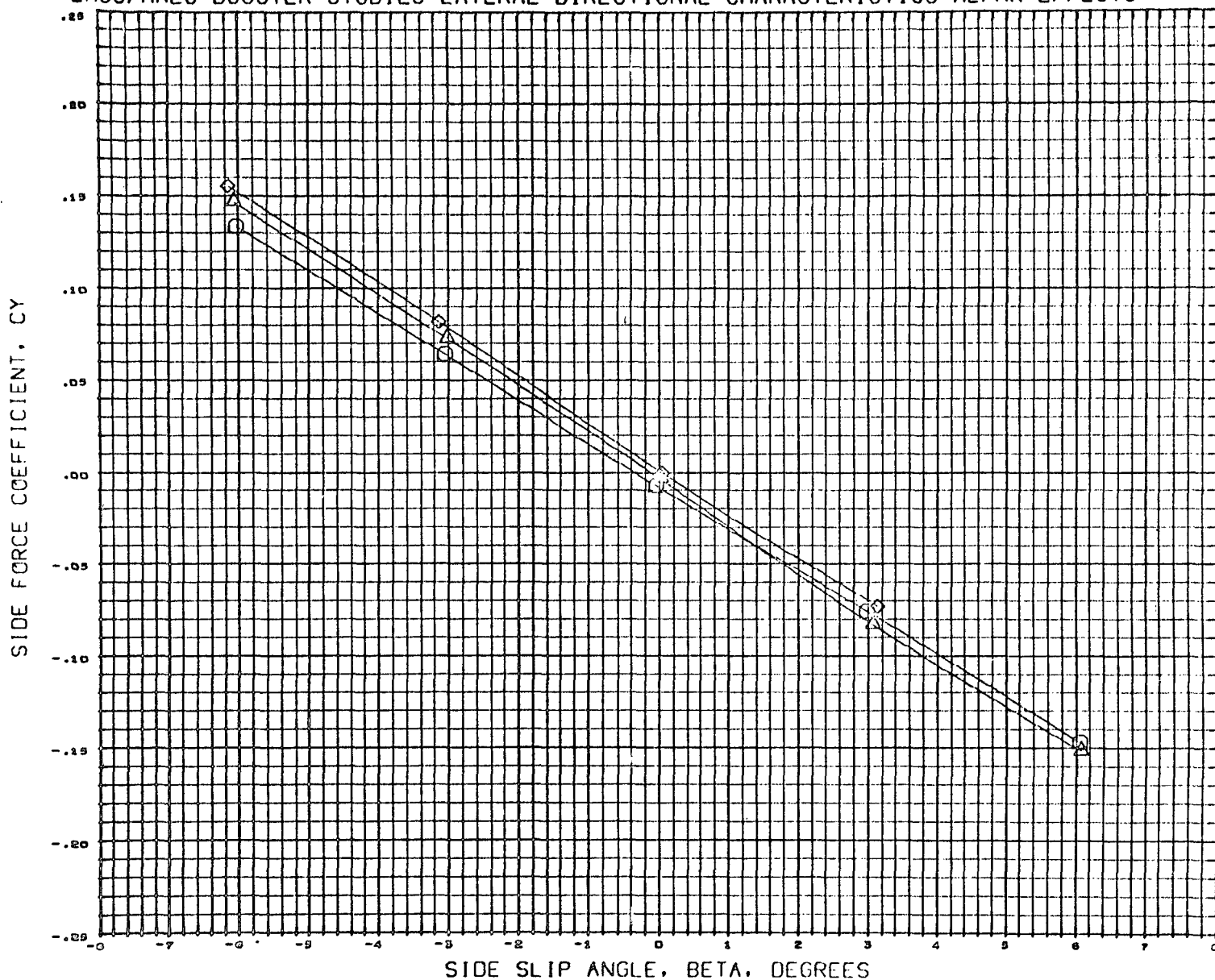
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(JN3002)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 80.FT.
(JN3003)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.200	0.000	0.000	0.000	LREF	3.4530 FEET
(JN3004)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.500	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.5050 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.500

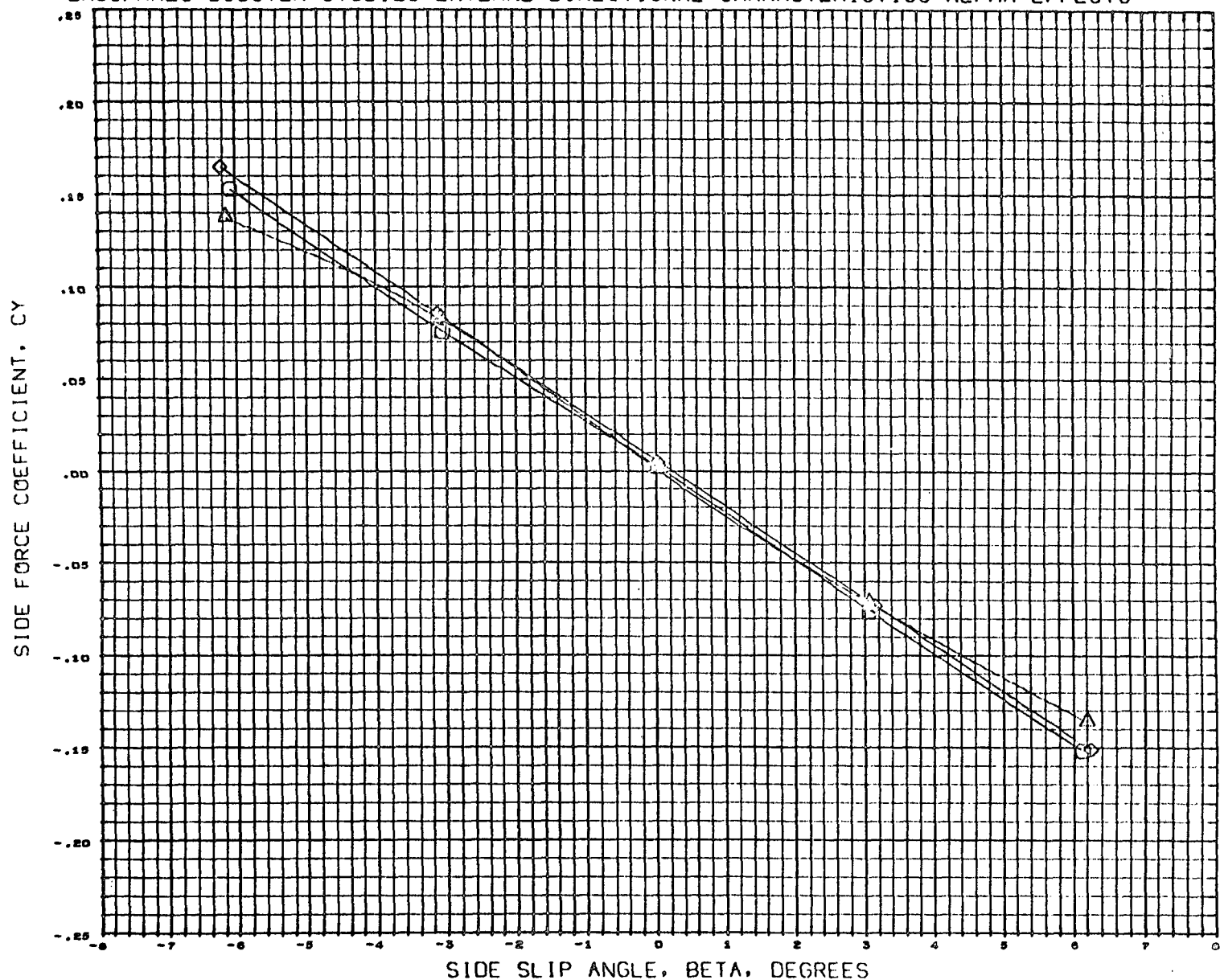
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(JN3002)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(JN3003)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.200	0.000	0.000	0.000	LREF	3.4530 FEET
(JN3004)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.500	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.099

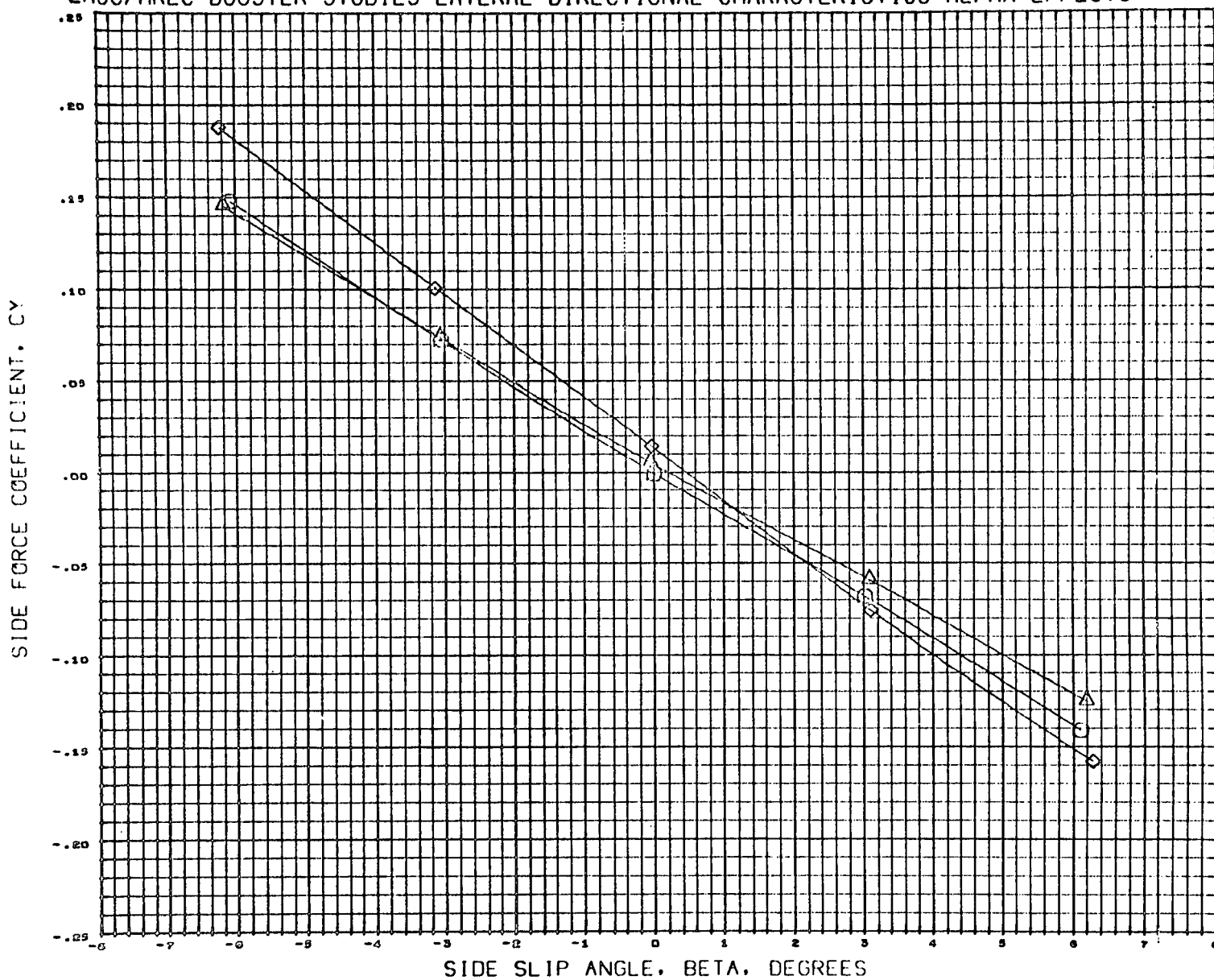
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(JN3002)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(JN3003)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	6.200	0.000	0.000	0.000	LREF	3.4530 FEET
(JN3004)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.500	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.600

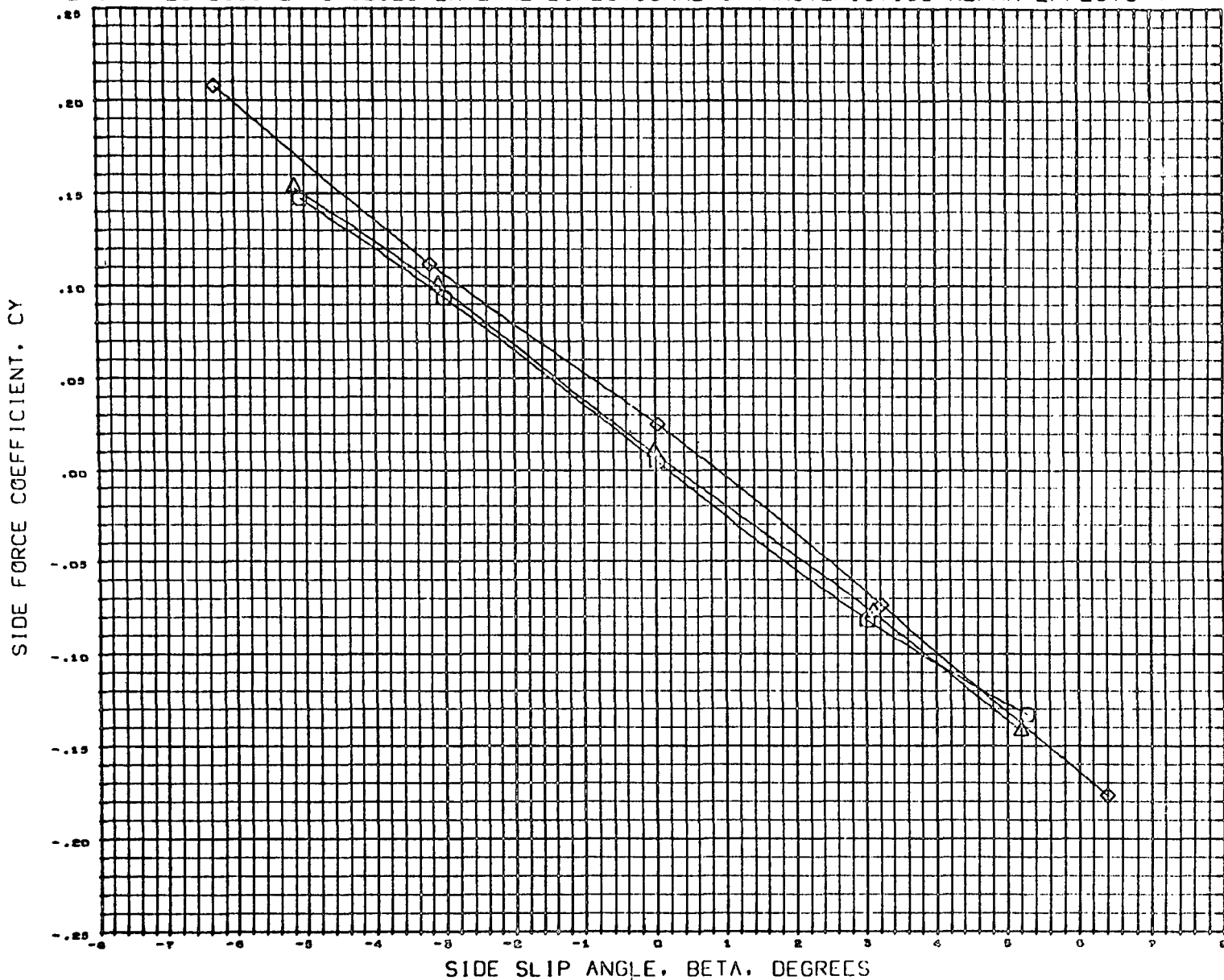
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(JN3002)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(JN3003)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.200	0.000	0.000	0.000	LREF	3.4930 FEET
(JN3004)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.500	0.000	0.000	0.000	BREF	3.4530 FEET
						XM RP	2.5950 FEET
						YM RP	0.0000 FEET
						ZM RP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.900

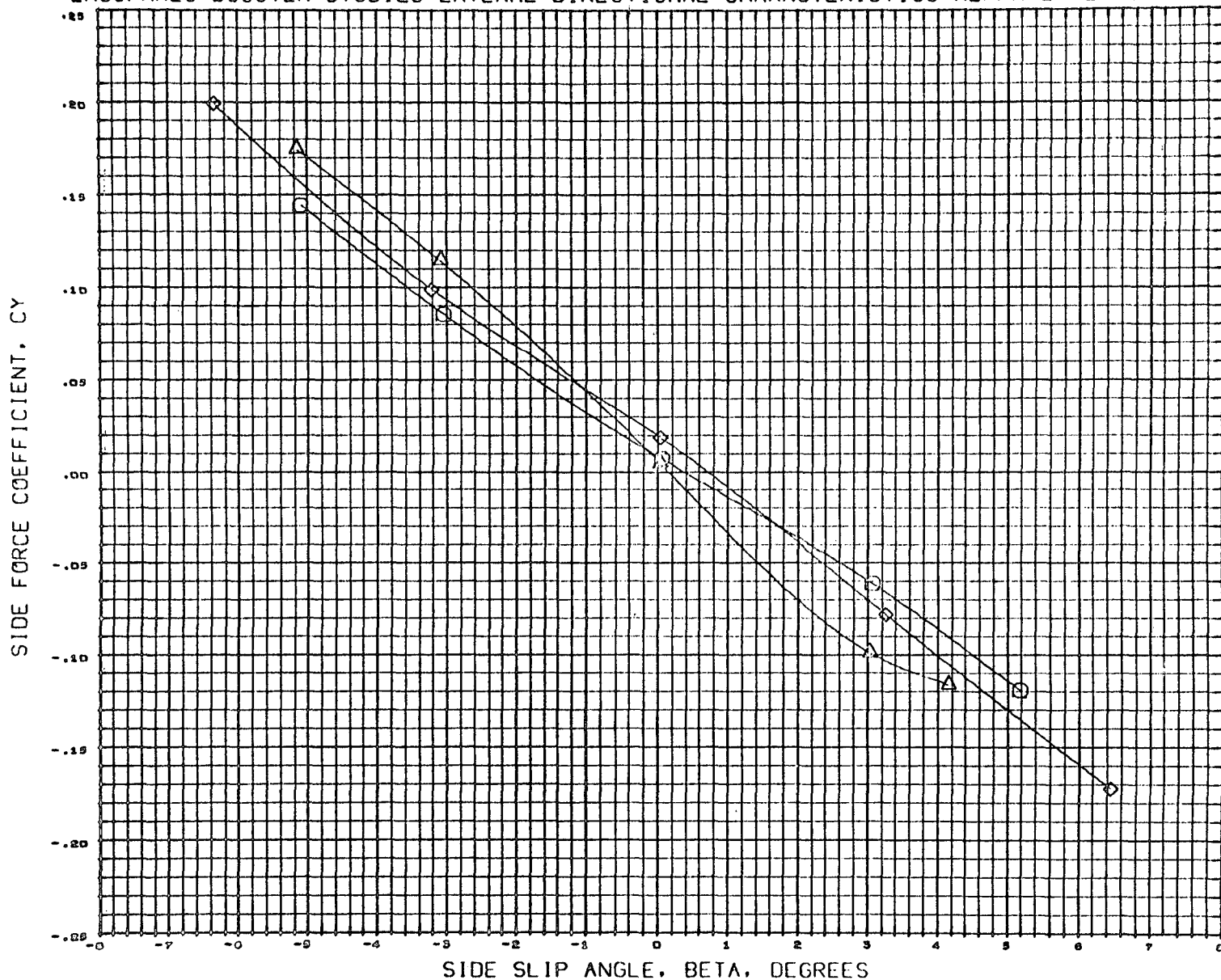
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(JN3002)	N8RDC-3210,MSFC/LM9C BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(JN3003)	N8RDC-3210,MSFC/LM9C BOOSTER B1C2F2W1V1	6.200	0.000	0.000	0.000	LREF	3.4530 FEET
(JN3004)	N8RDC-3210,MSFC/LM9C BOOSTER B1C2F2W1V1	15.500	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 1.001

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS

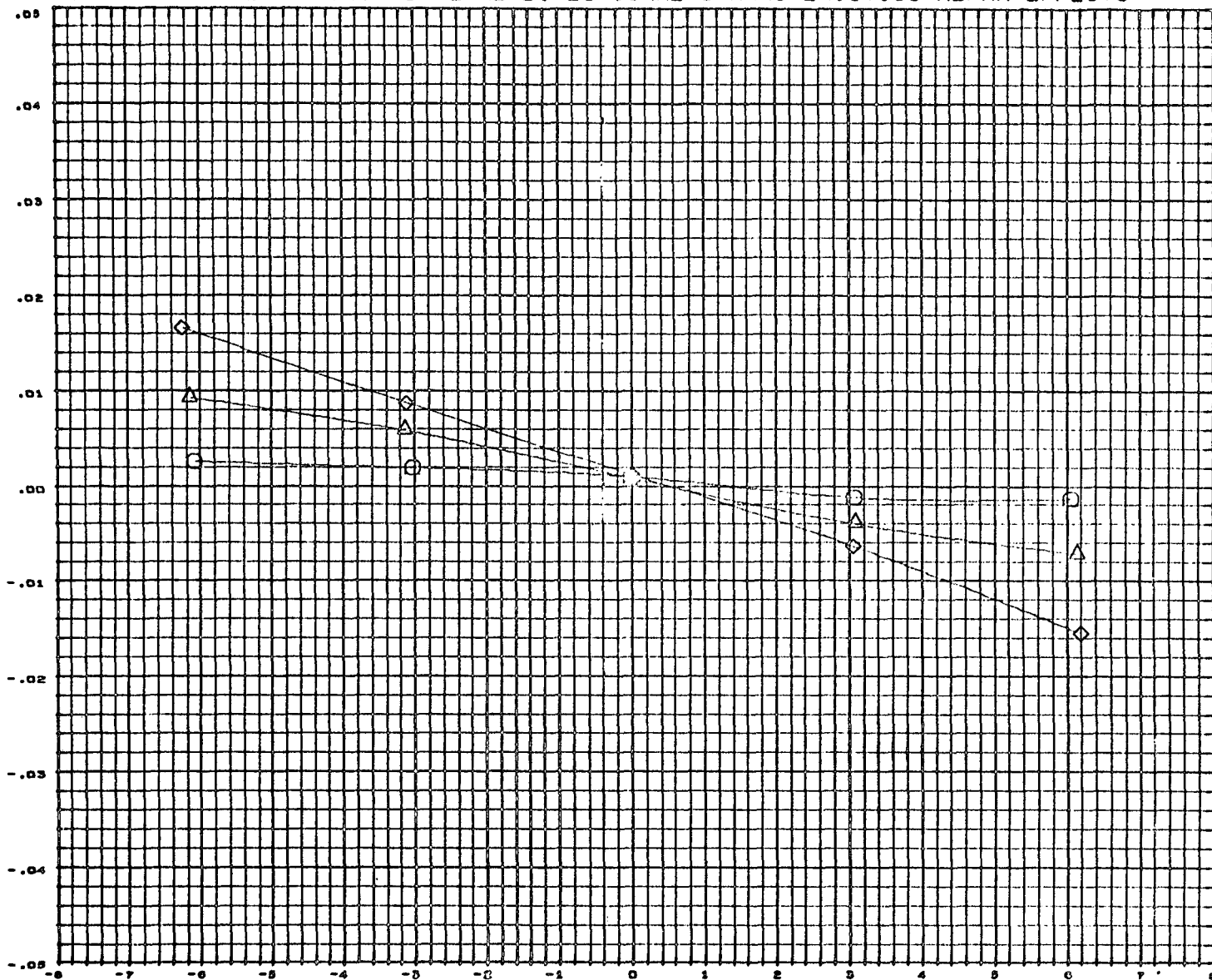


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(JN3002)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(JN3003)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.200	0.000	0.000	0.000	LREF	3.4550 FEET
(JN3004)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.500	0.000	0.000	0.000	BREF	3.4550 FEET
						XMRF	2.5950 FEET
						YMRF	0.0000 FEET
						ZMRF	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 1.122

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS

YAWING MOMENT COEFFICIENT, CYN (BODY AXIS)



SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL

CONFIGURATION DESCRIPTION

(JN3002) NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1
(JN3003) NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1
(JN3004) NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1

ALPHA

RUDDER

CANARD

ELEVTR

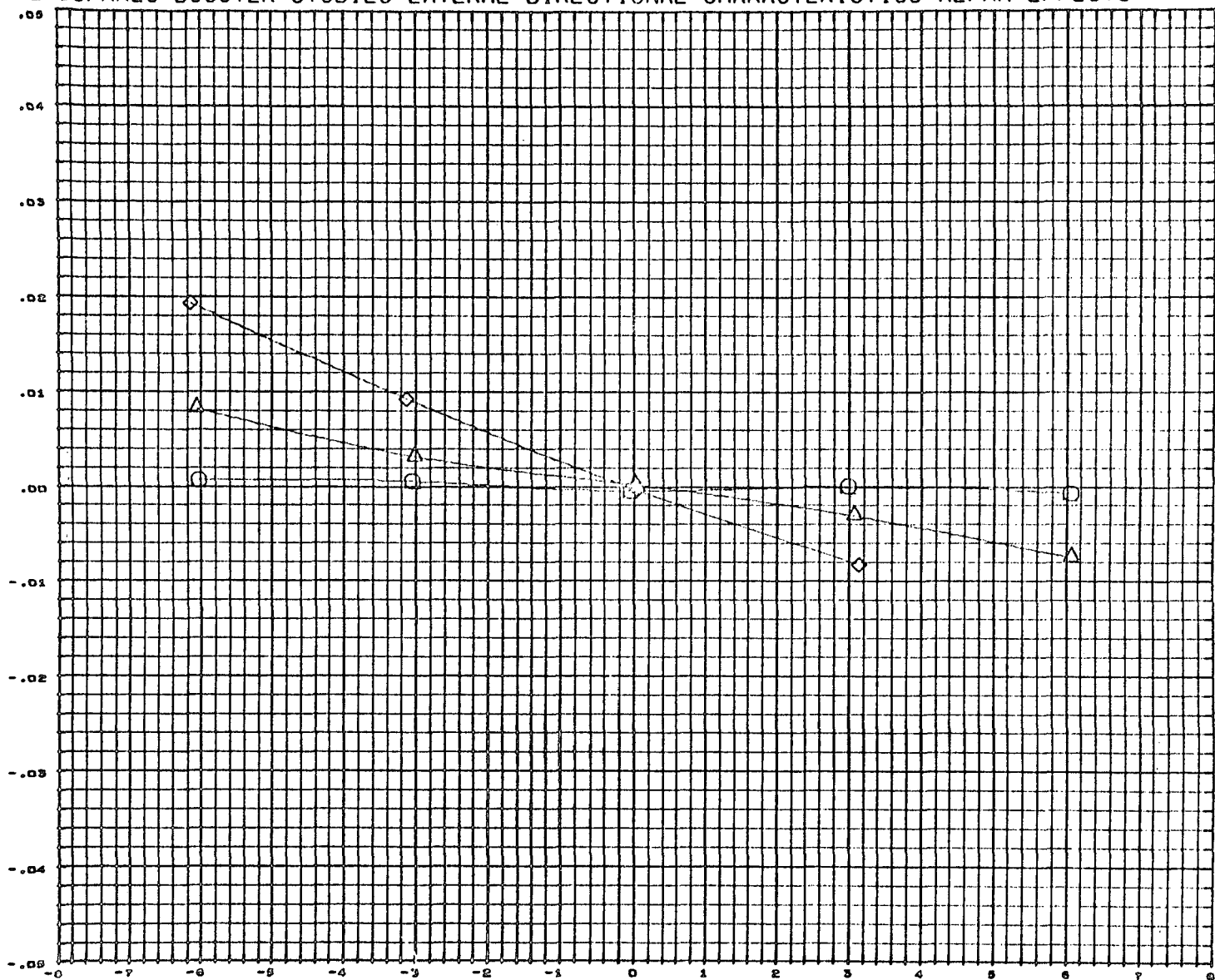
REFERENCE INFORMATION

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6.200	0.000	0.000	0.000	LREF	3.4530	FEET
15.900	0.000	0.000	0.000	BREF	3.4530	FEET
				XMRP	2.9930	FEET
				YMRP	0.0000	FEET
				ZMRP	0.0187	FEET
				SCALE	0.0150	SCALE

MACH 0.500

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS

YAWING MOMENT COEFFICIENT, CYN (BODY AXIS)

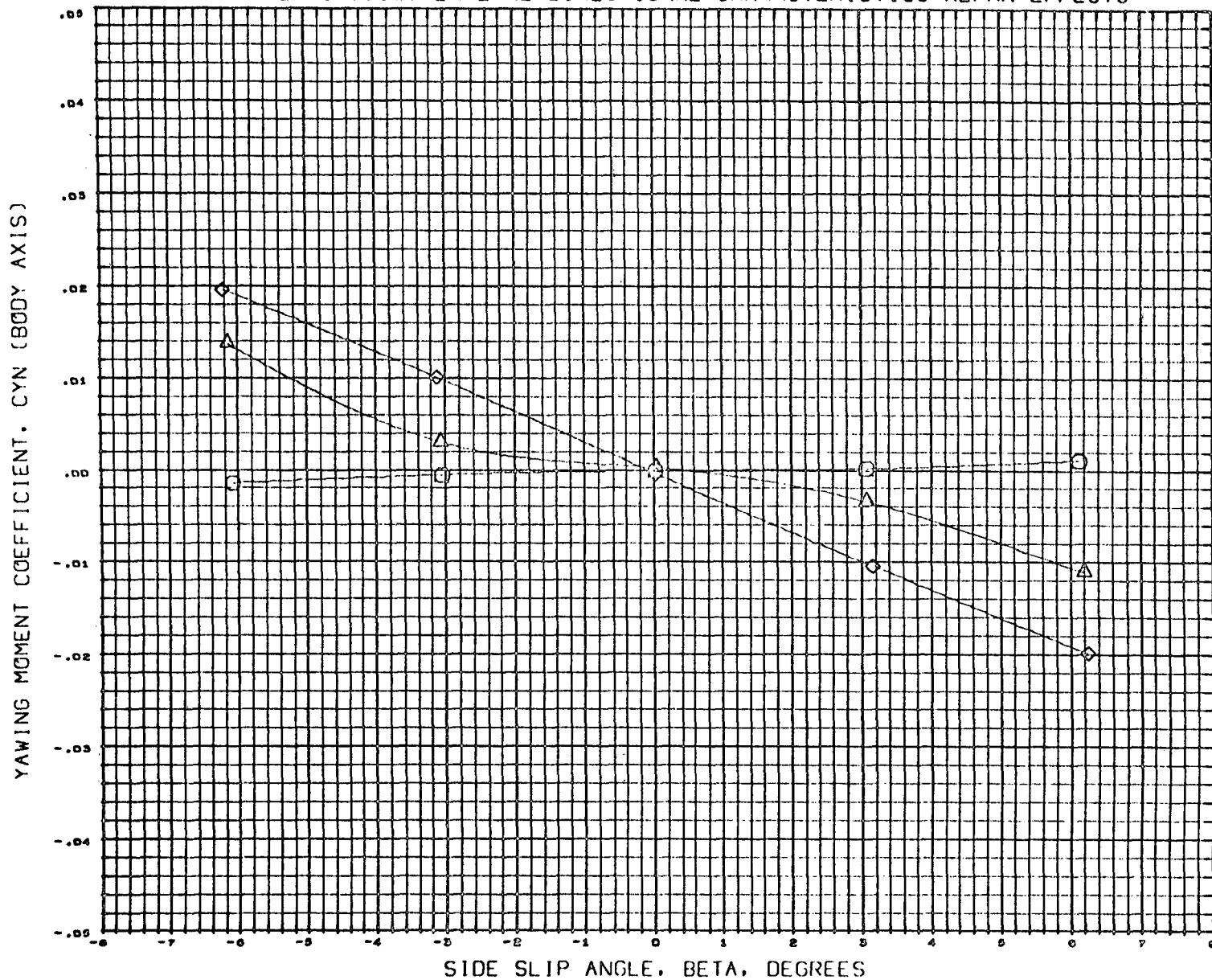


SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(JNS002)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3530 SQ.FT.
(JNS003)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.200	0.000	0.000	0.000	LREF	3.4530 FEET
(JNS004)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.900	0.000	0.000	0.000	SREF	3.4530 FEET
						XMRP	2.5930 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.899

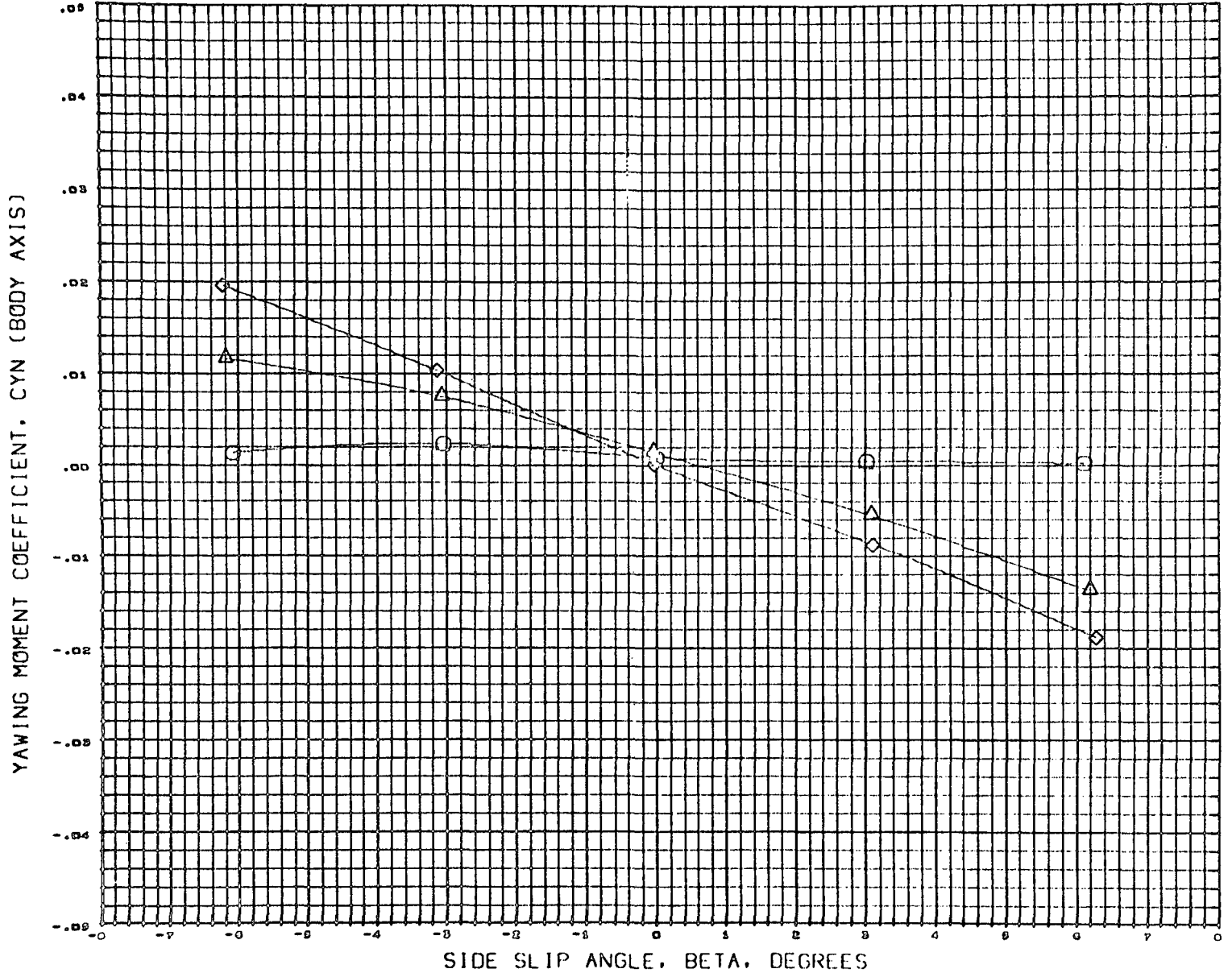
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(JN3002)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3950 00.FT.
(JN3003)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.200	0.000	0.000	0.000	LREF	3.4530 FEET
(JN3004)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.500	0.000	0.000	0.000	BREF	3.4530 FEET
							XMRP	2.3950 FEET
							YMRP	0.0000 FEET
							ZMRP	0.0167 FEET
							SCALE	0.0150 SCALE

MACH 0.800

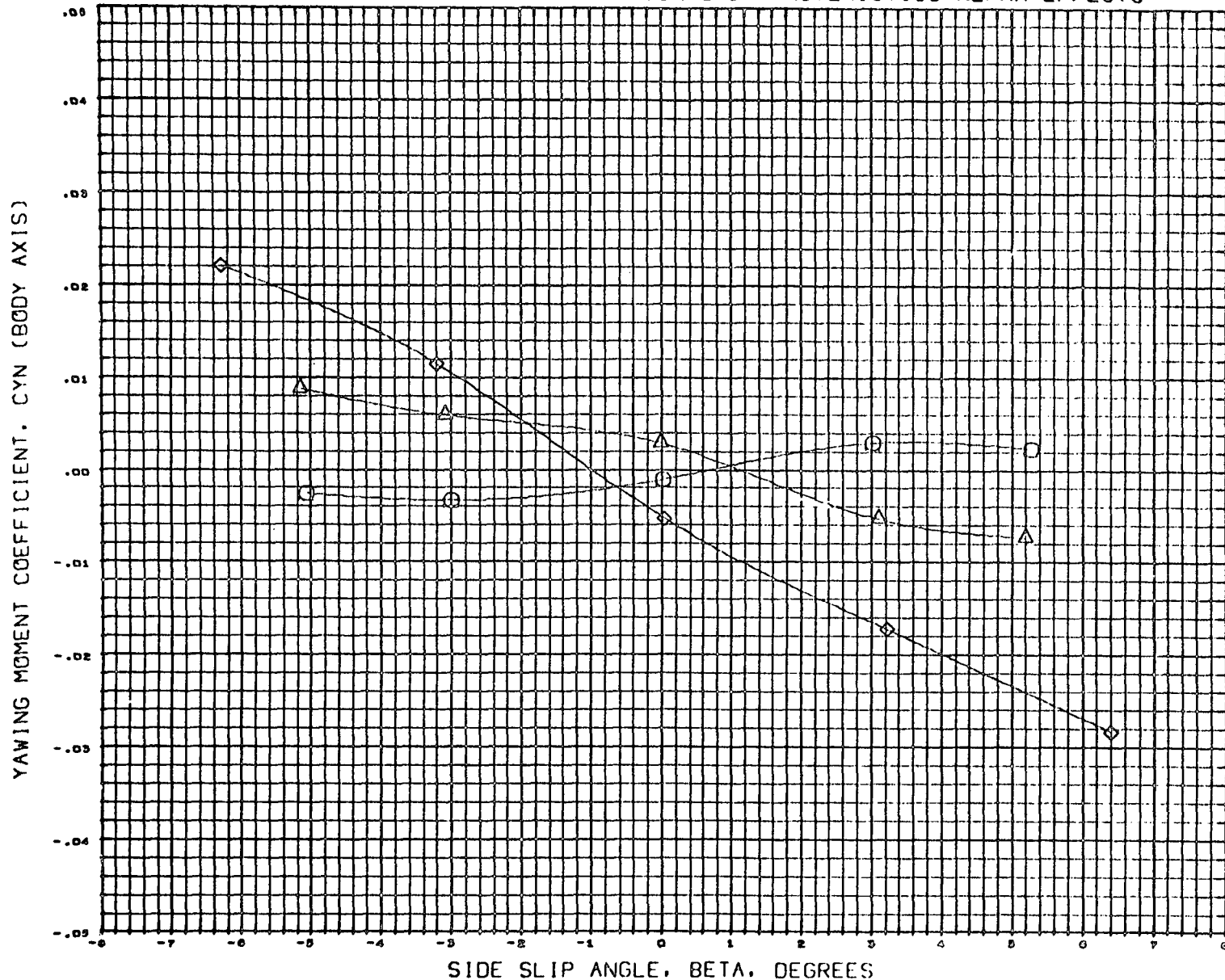
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(JN3002)	NSRDC-3210,MSFC/LMSC BOOSTER 81C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(JN3003)	NSRDC-3210,MSFC/LMSC BOOSTER 81C2F2W1V1	6.200	0.000	0.000	0.000	LREF	3.4530 FEET
(JN3004)	NSRDC-3210,MSFC/LMSC BOOSTER 81C2F2W1V1	15.500	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.000

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS

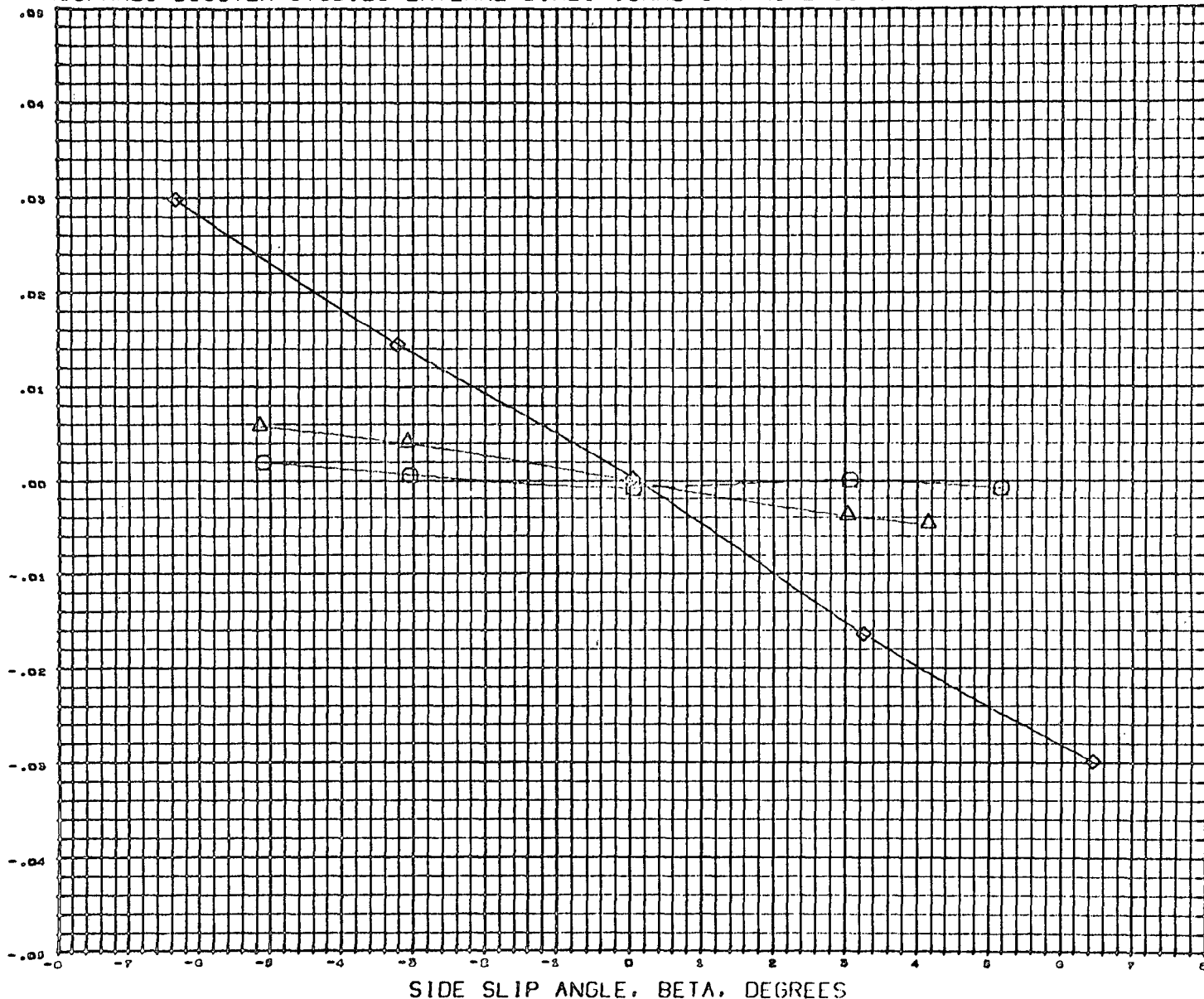


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(JN3002)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	1.3550 SQ. FT.
(JN3003)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	6.200	0.000	0.000	0.000	LREF	3.4530 FEET
(JN3004)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.500	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.5050 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 1.001

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS

YAWING MOMENT COEFFICIENT, CYN (BODY AXIS)



SIDE SLIP ANGLE, BETA, DEGREES

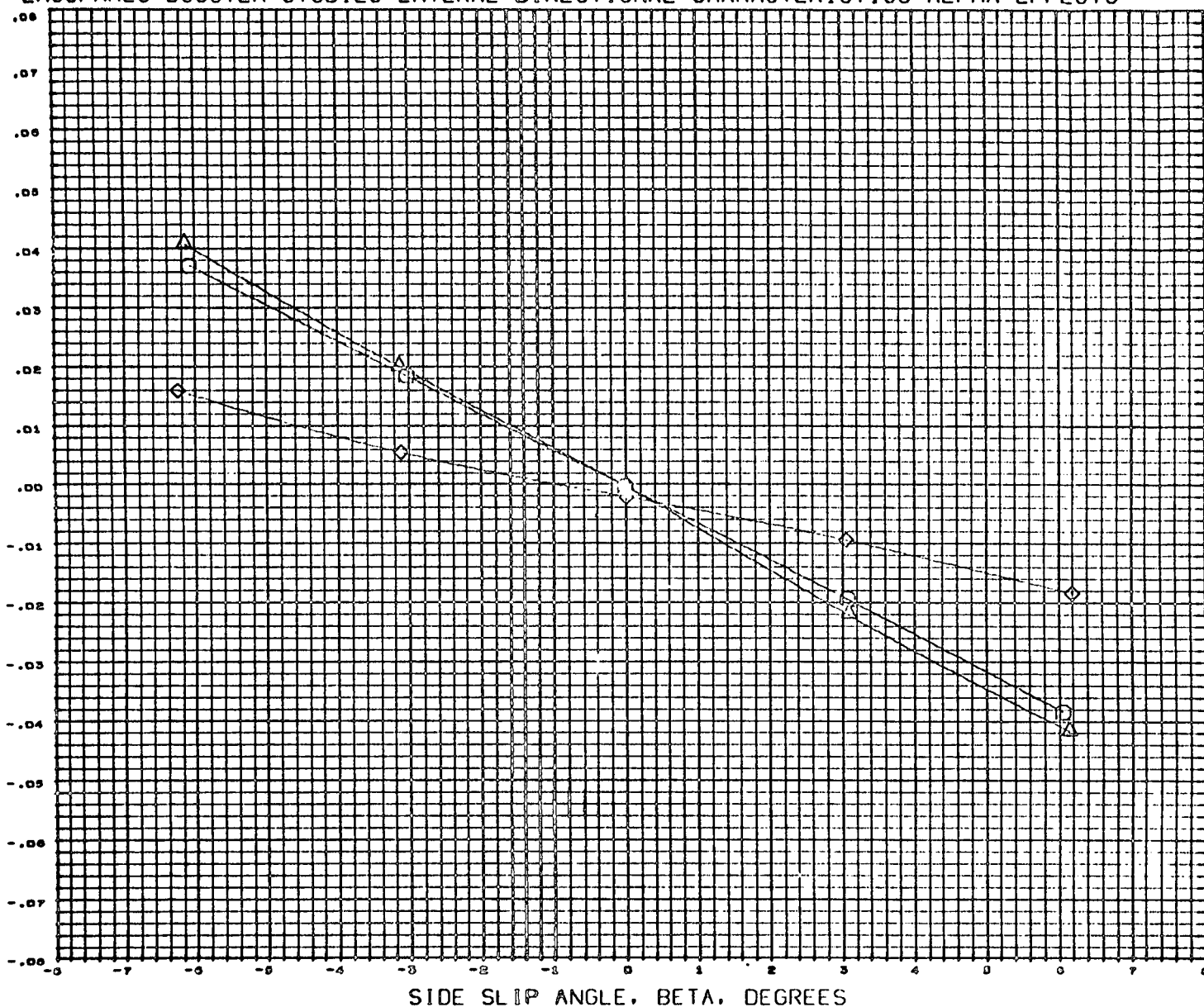
DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(JN3002)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 00. FT.
(JN3003)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	6.200	0.000	0.000	0.000	LREF	3.4530 FEET
(JN3004)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.500	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.5930 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 1.122

8

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)

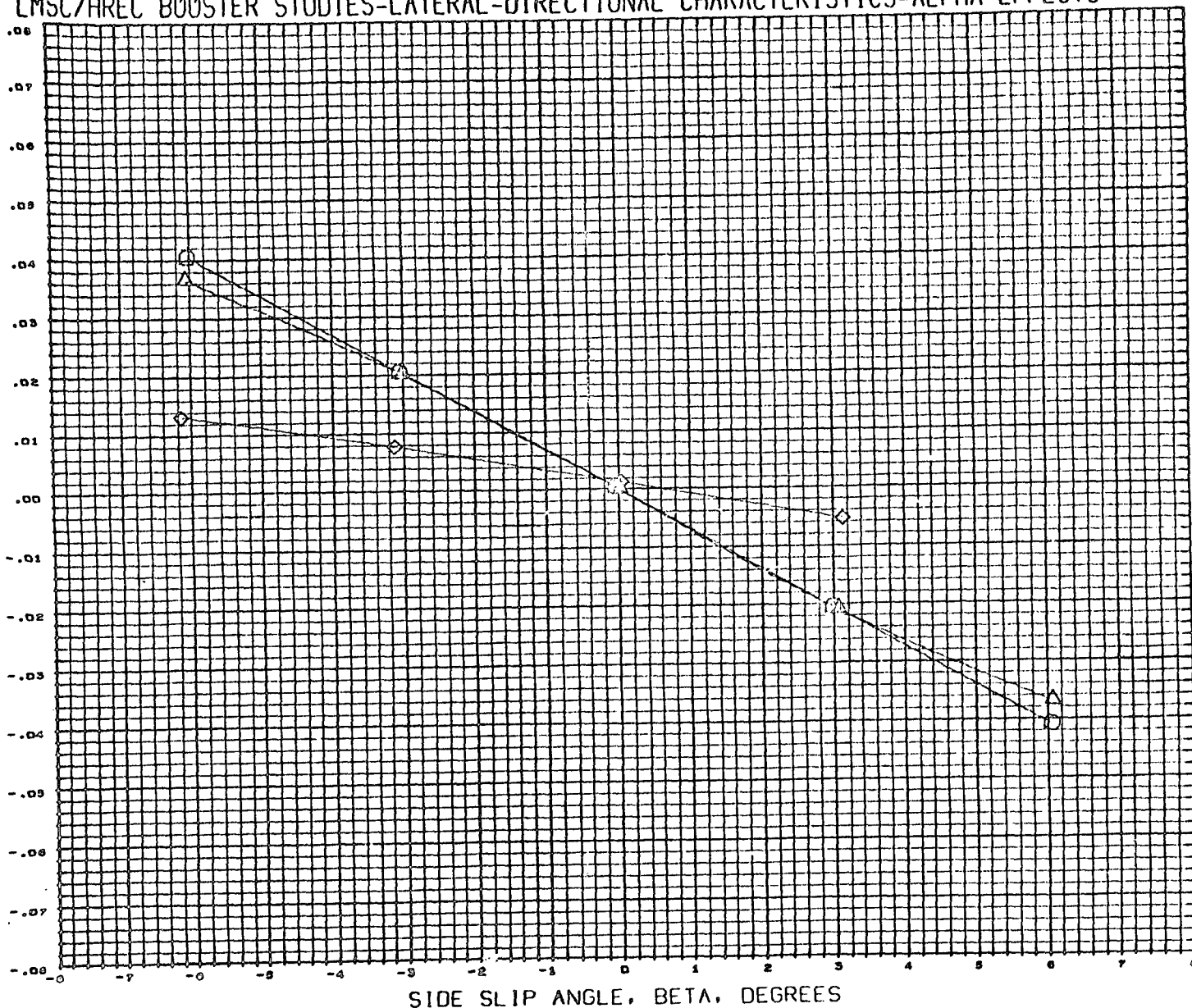


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(JN3002)	N8RDC-3210,MSFC/LM3C BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(JN3003)	N8RDC-3210,MSFC/LM3C BOOSTER B1C2F2W1V2	6.200	0.000	0.000	0.000	LREF	3.4930 FEET
(JN3004)	N8RDC-3210,MSFC/LM3C BOOSTER B1C2F2W1V1	15.900	0.000	0.000	0.000	SREF	3.4930 FEET
						XMRP	2.9990 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0190 SCALE

MACH 0.500

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)



DATA SET SYMBOL
(JN3002)
(JN3003)
(JN3004)

CONFIGURATION DESCRIPTION
NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1
NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1
NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1

ALPHA	RUDDER	CANARD	ELEVTR
0.000	0.000	0.000	0.000
6.200	0.000	0.000	0.000
15.500	0.000	0.000	0.000

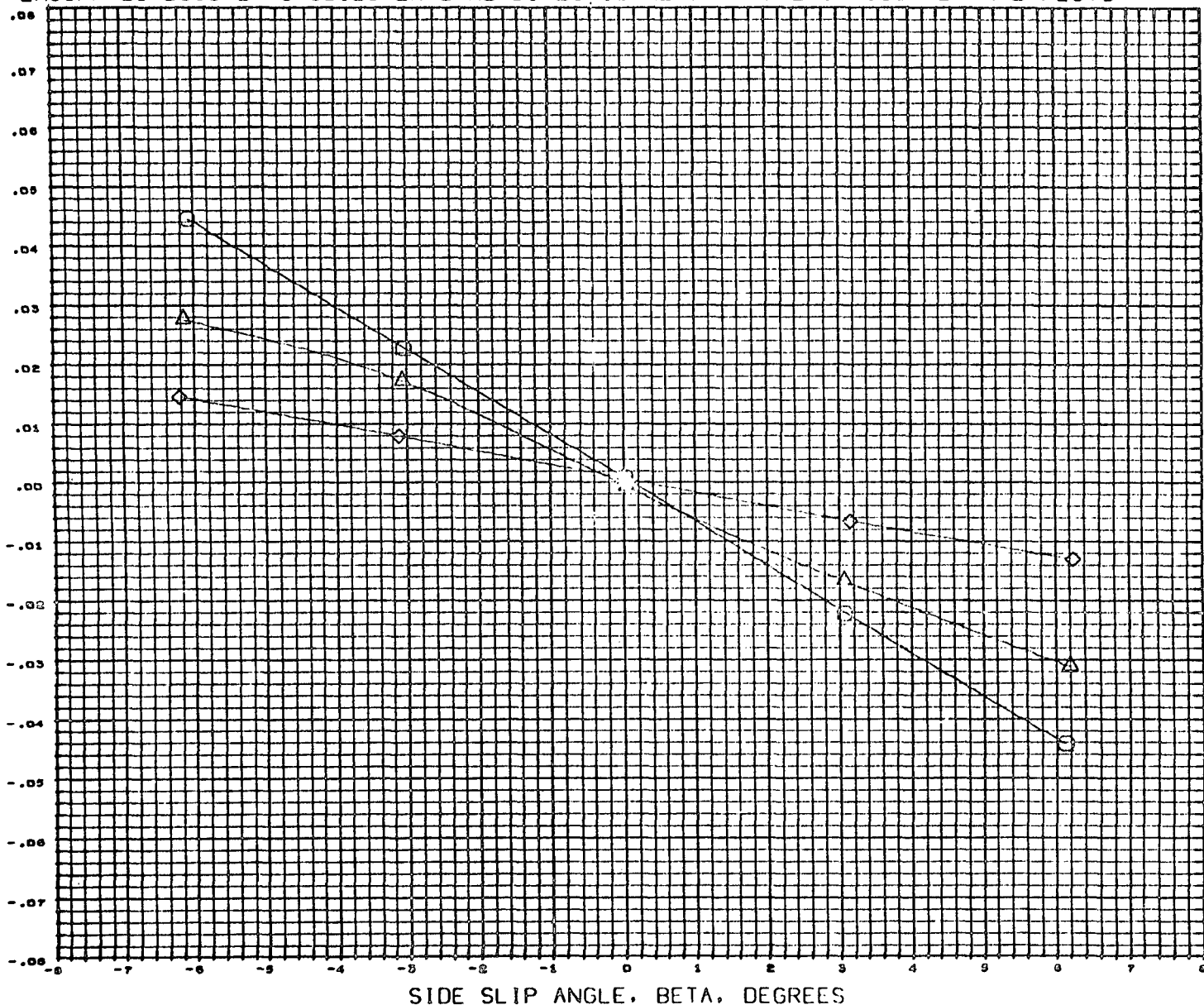
REFERENCE INFORMATION	
BREF	1.3550 SQ. FT.
LREF	3.4330 FEET
BREF	3.4330 FEET
XMRP	8.5950 FEET
YMRP	0.0000 FEET
ZMRP	0.0187 FEET
SCALE	0.0150 SCALE

MACH

0.850

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)

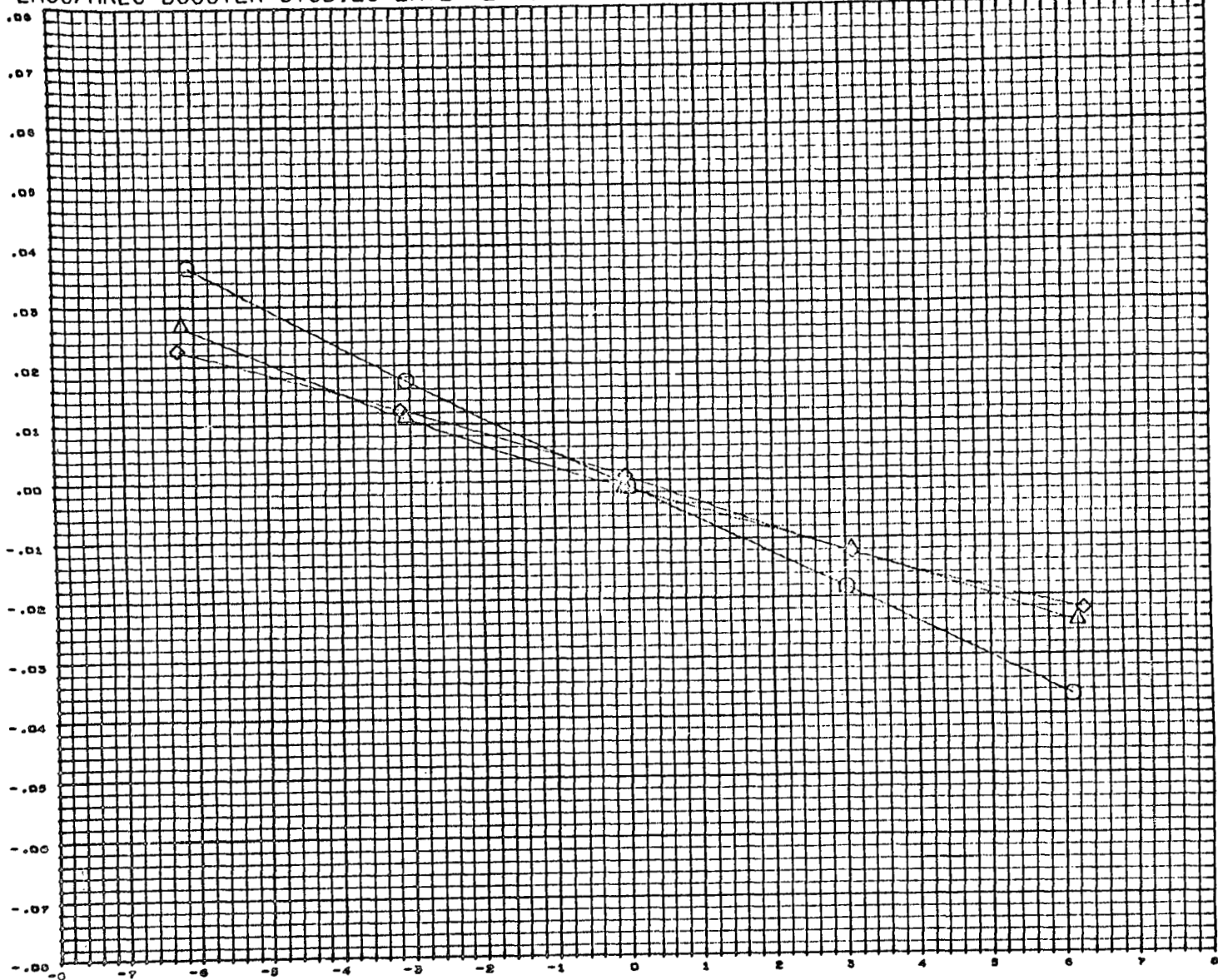


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(JN3002)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 80.FT.
(JN3003)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.200	0.000	0.000	0.000	LREF	3.4530 FEET
(JN3004)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.500	0.000	0.000	0.000	SREF	3.4530 FEET
						XMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.800

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)



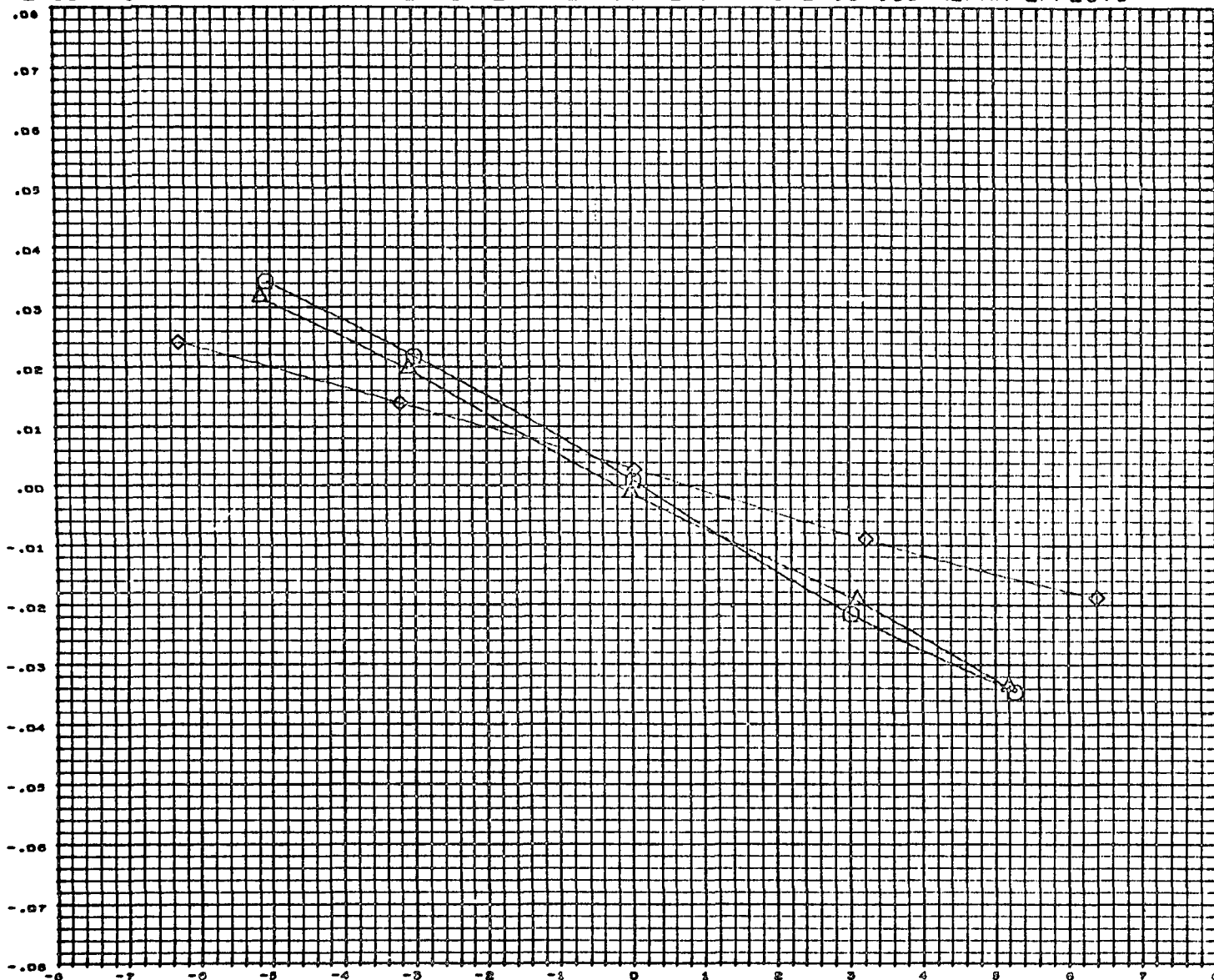
SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(JN3002)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(JN3003)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	6.200	0.000	0.000	0.000	LREF	3.4530 FEET
(JN3004)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.500	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.000

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)

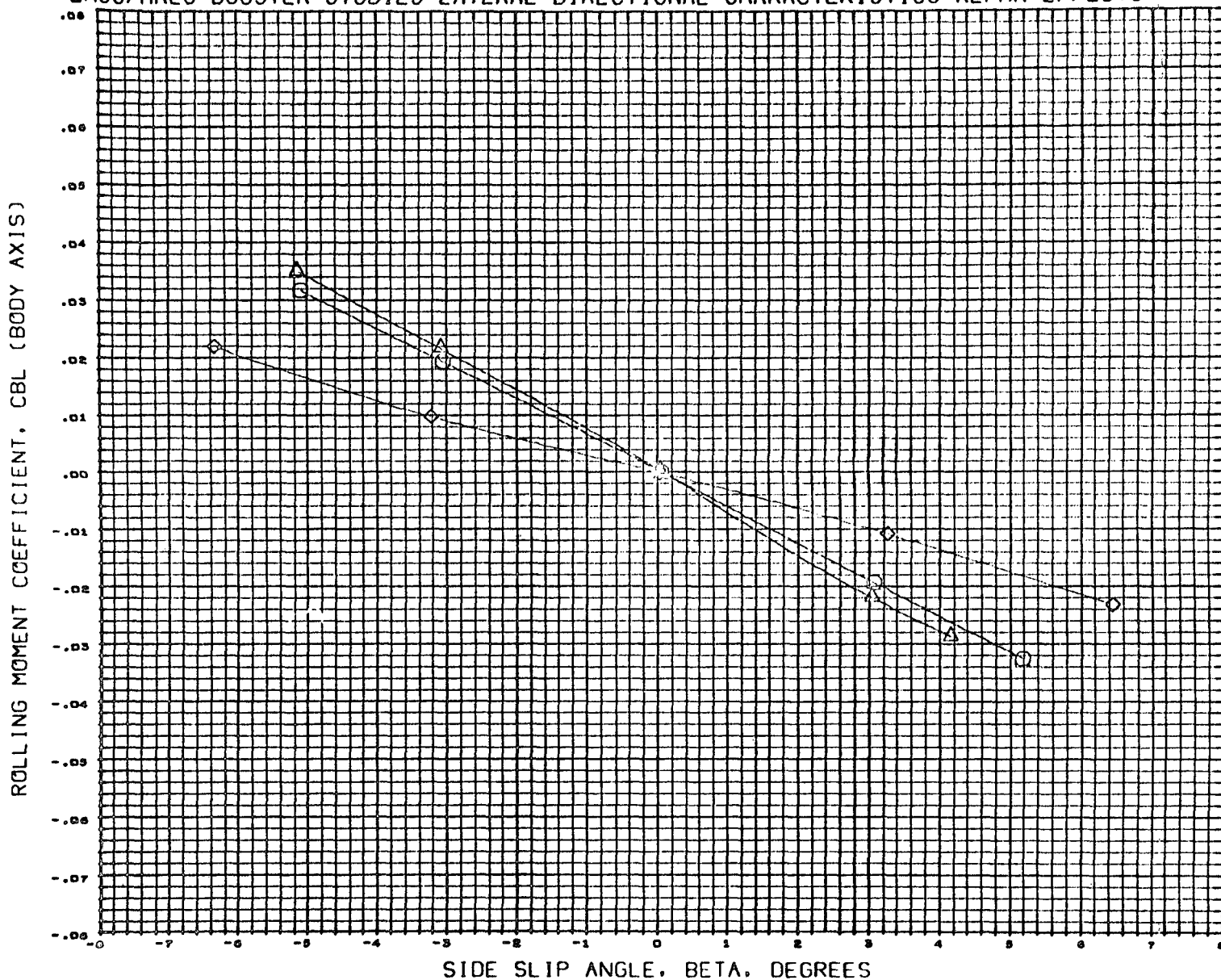


SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(JN3002)	NSRDC-3210, M8FC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	OREF	1.3990 SQ. FT.
(JN3003)	NSRDC-3210, M8FC/LMSC BOOSTER B1C2F2W1V1	6.200	0.000	0.000	0.000	LREF	3.4530 FEET
(JN3004)	NSRDC-3210, M8FC/LMSC BOOSTER B1C2F2W1V1	15.900	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	0.5930 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 1.001

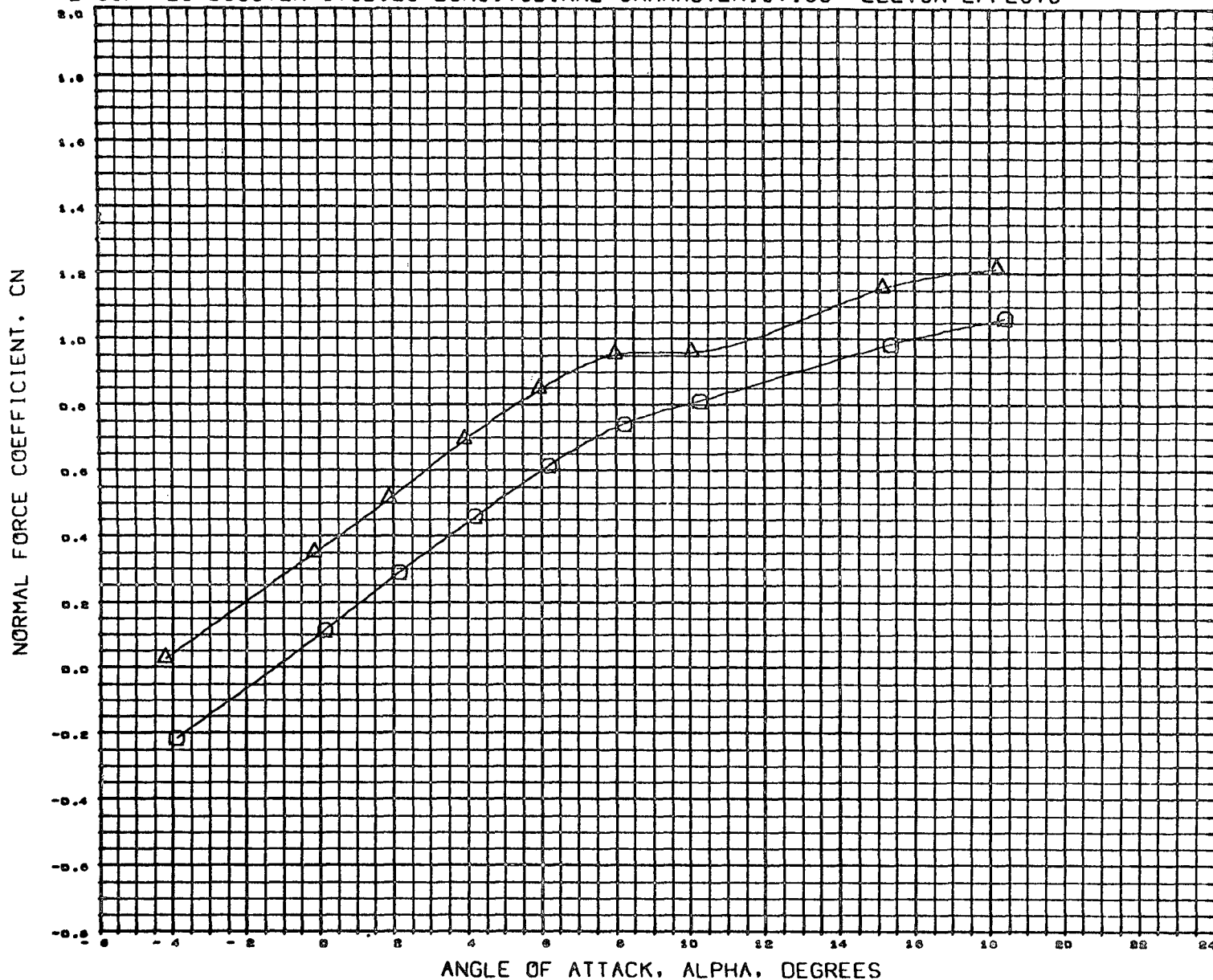
LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(JN3002)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(JN3003)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	6.200	0.000	0.000	0.000	LREF	3.4530 FEET
(JN3004)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	15.500	0.000	0.000	0.000	SREF	3.4530 FEET
						XMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 1.122

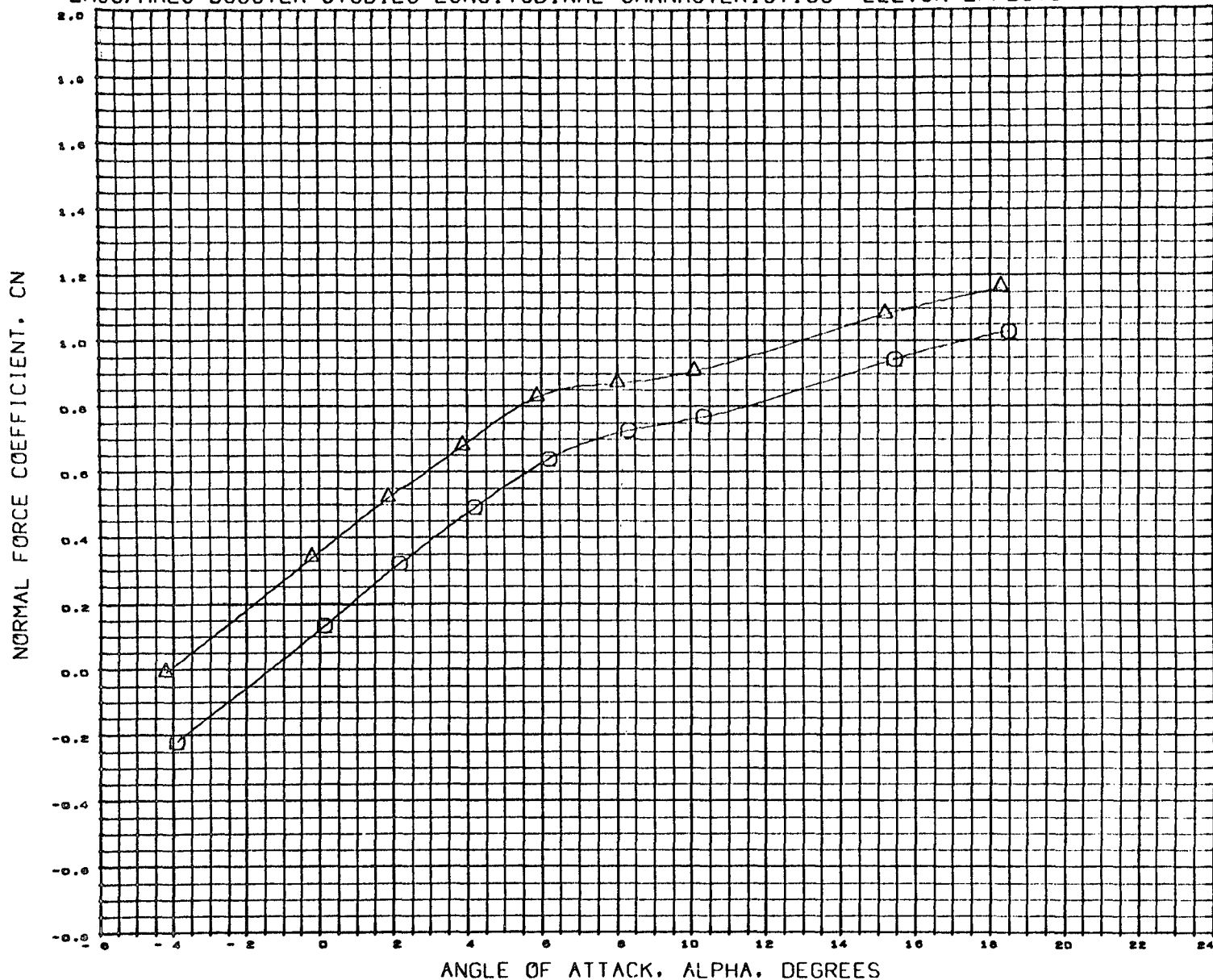
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION
(RNS053)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	0.000	0.000	3REF 1.5550 90.FT.
(RNS057)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	20.000	0.000	3REF 3.4530 FEET
						3REF 3.4530 FEET
						3MRP 2.5980 FEET
						3MRP 0.0000 FEET
						3MRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 0.701

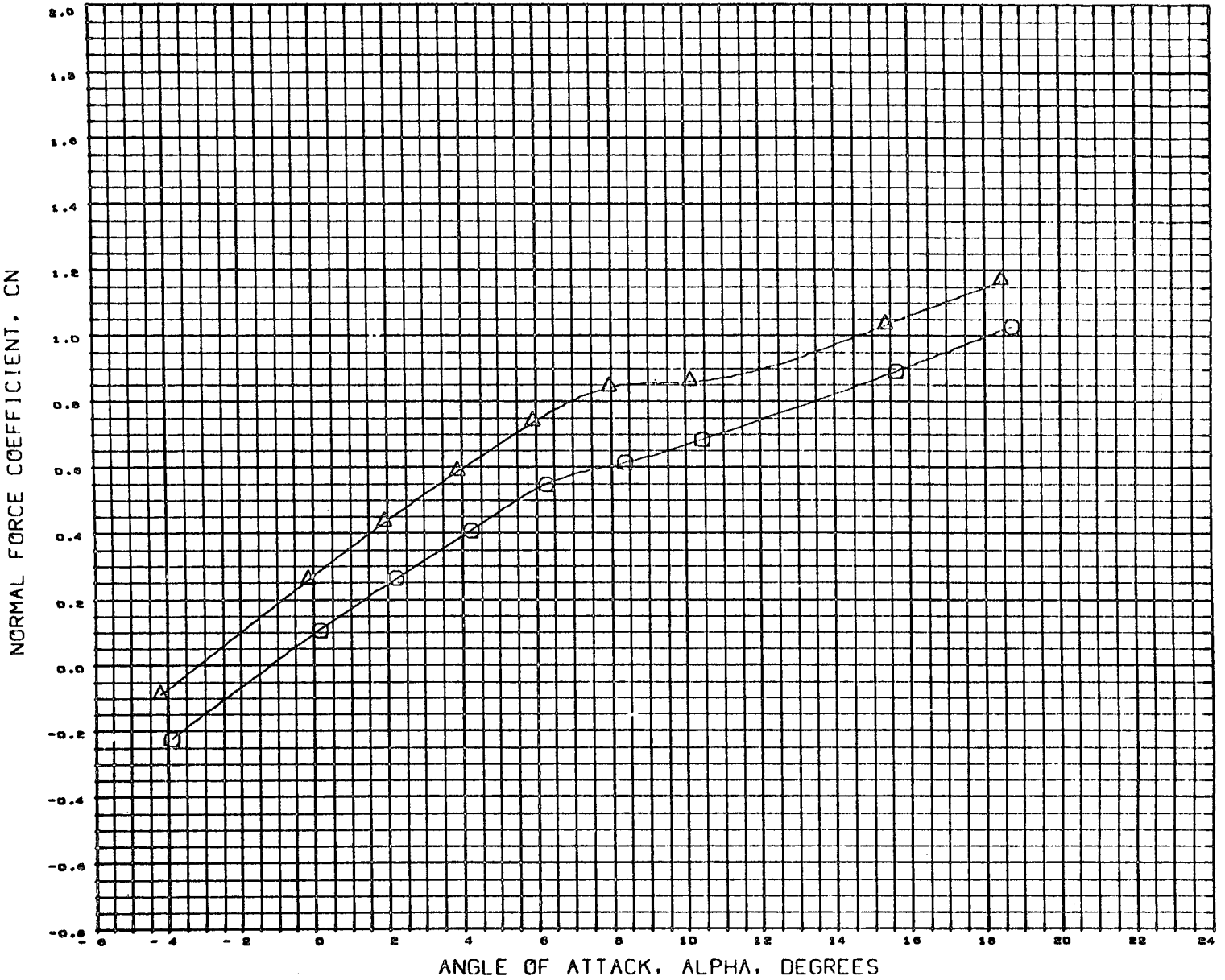
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION	
(RNS053)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	0.000	0.000	SREF	1.3550 SQ. FT.
(RNS057)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	20.000	0.000	LREF	3.4930 FEET
						BREF	3.4930 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.799

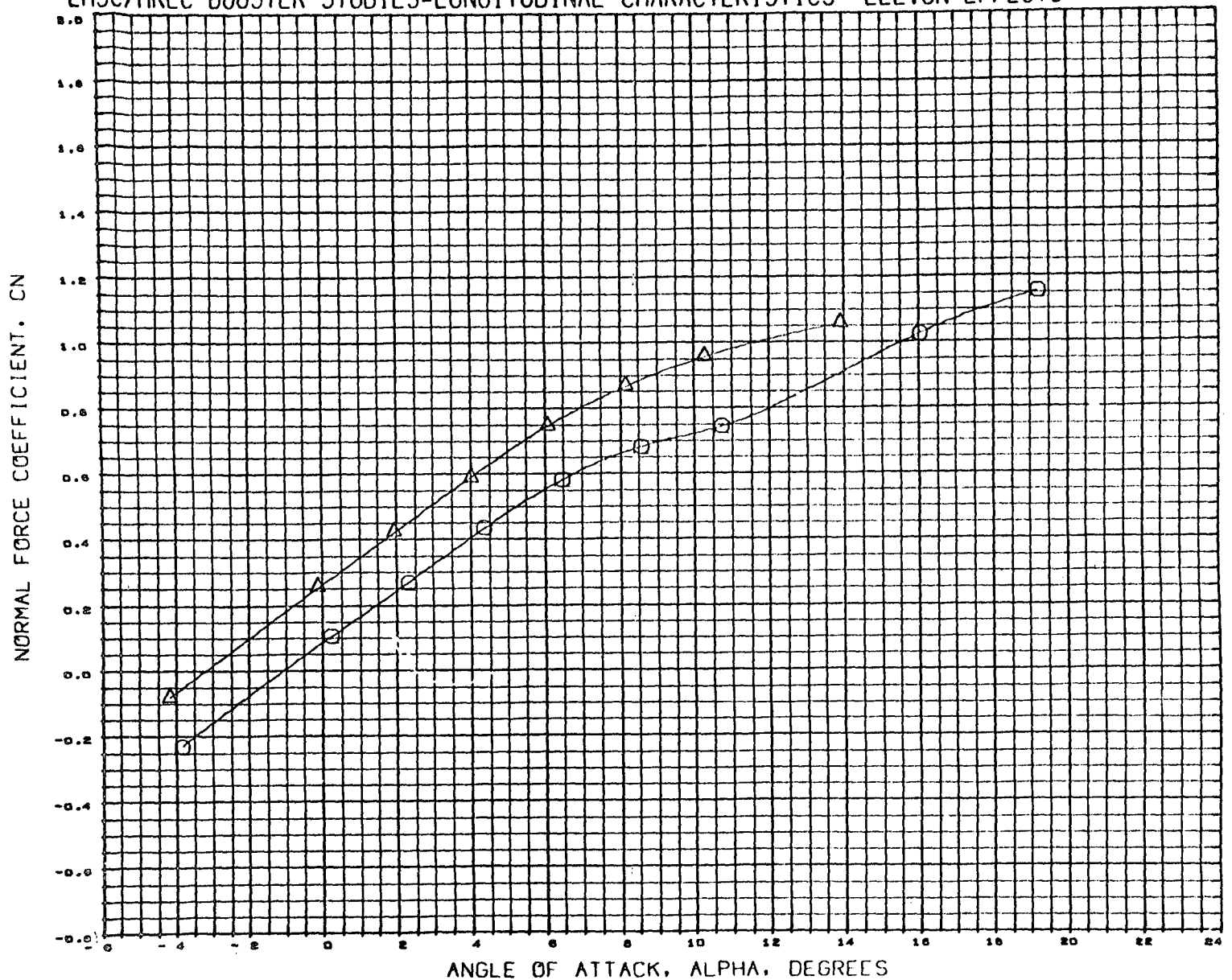
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION	
(RN3053)	NBRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3057)	NBRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	20.000	0.000	LREF	3.4530 FEET
						BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.904

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



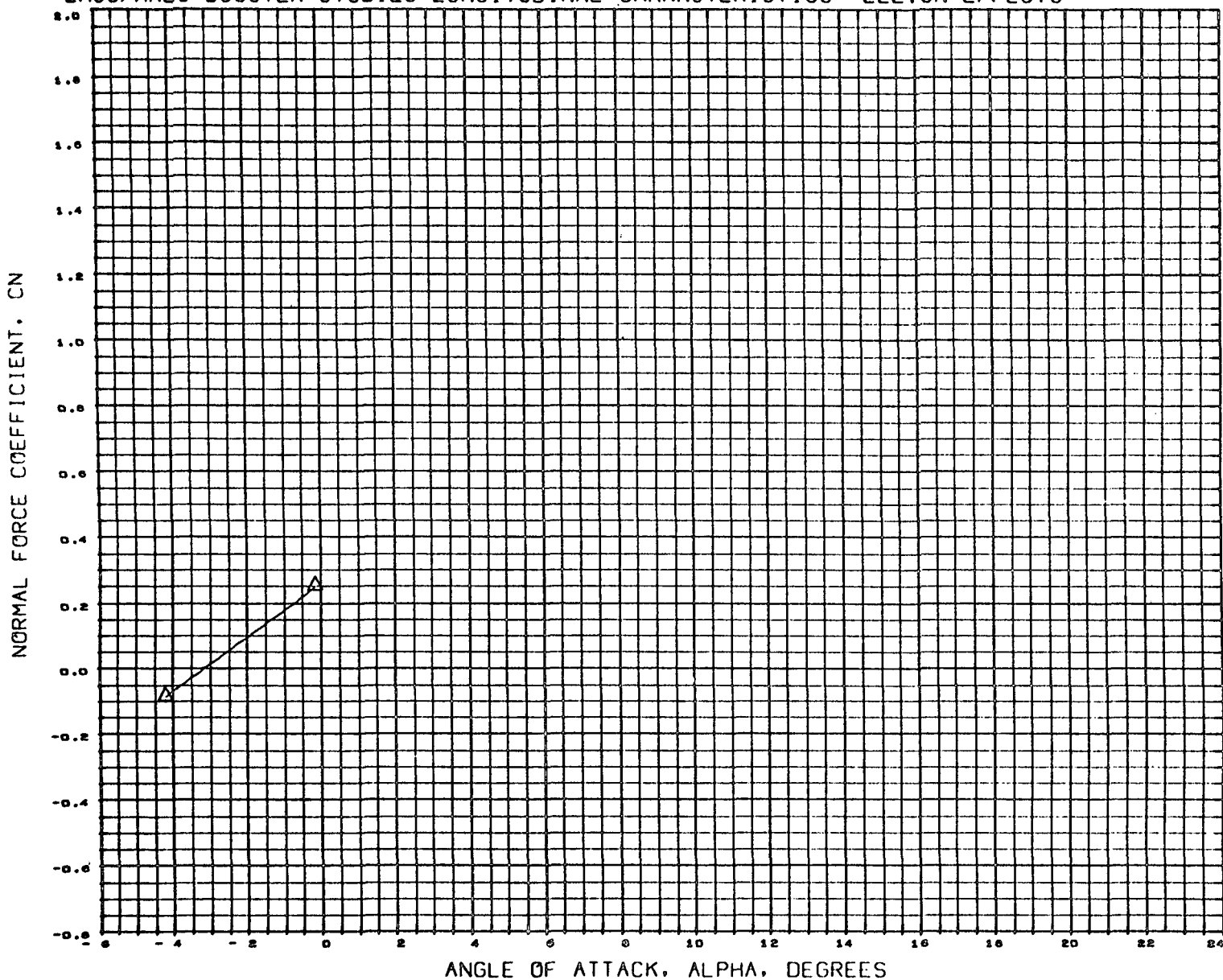
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(RNS053)	NSRDC-3210, M8FC/LMSC BOOSTER B1C2F2W1V1
(RNS057)	NSRDC-3210, M8FC/LMSC BOOSTER B1C2F2W1V1

CNDPOS	INCIDC	ELEVTR	AILRON
2.000	3.000	0.000	0.000
2.000	3.000	20.000	0.000

REFERENCE INFORMATION	
SREF	1.3550 SQ. FT.
LREF	3.4530 FEET
BREF	3.4530 FEET
XMRP	2.5950 FEET
YMRP	0.0000 FEET
ZMRP	0.0167 FEET
SCALE	0.0150 SCALE

MACH 1.000

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



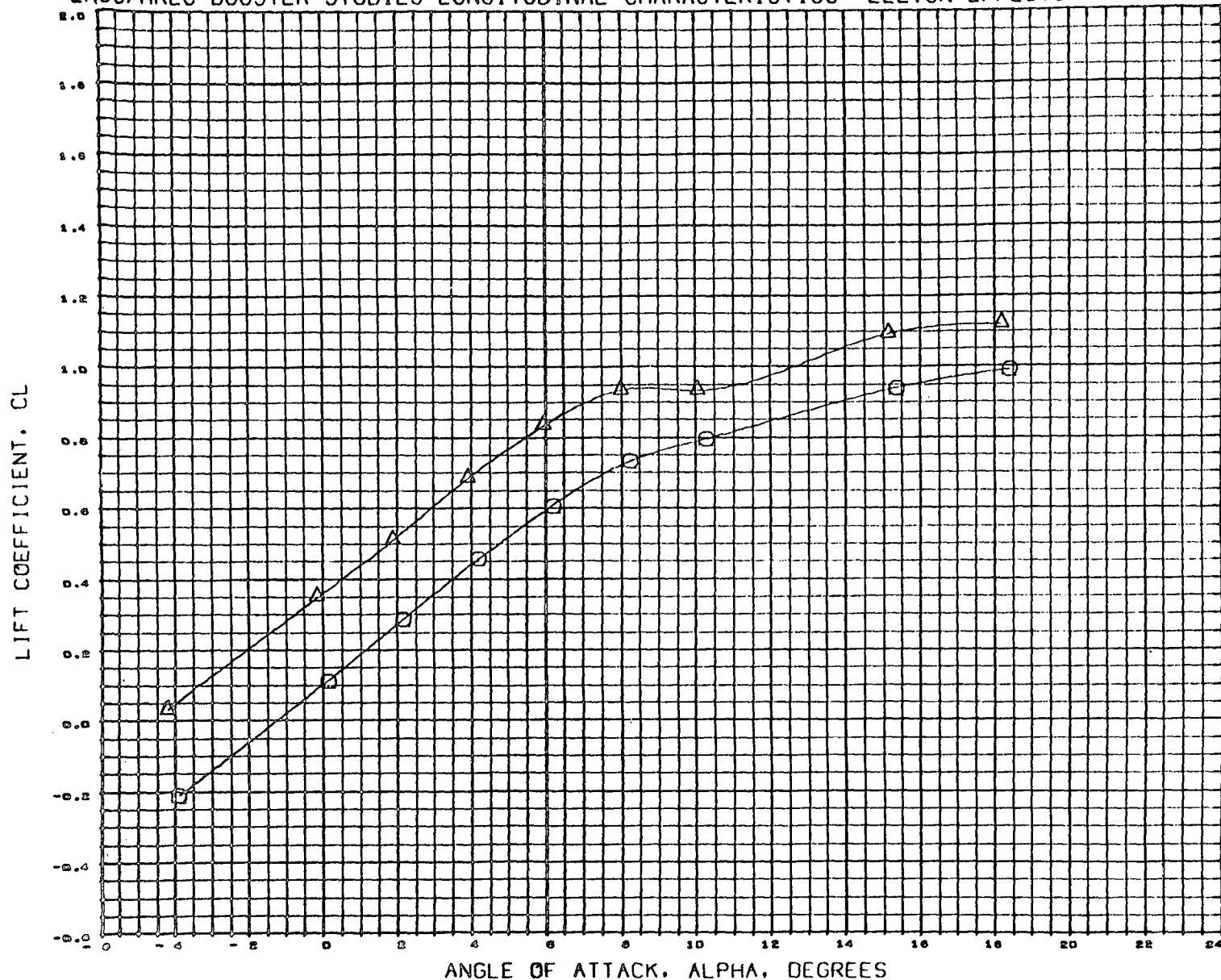
DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (RN3053) DATA NOT AVAILABLE FOR ALL CONDITIONS
 (RN3057) NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1

CNDPOS	INCIDC	ELEVTR	AILRON
2.000	3.000	0.000	0.000
2.000	3.000	20.000	0.000

REFERENCE INFORMATION		
SREF	1.3550	89. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0187	FEET
SCALE	0.0150	SCALE

MACH 1.125

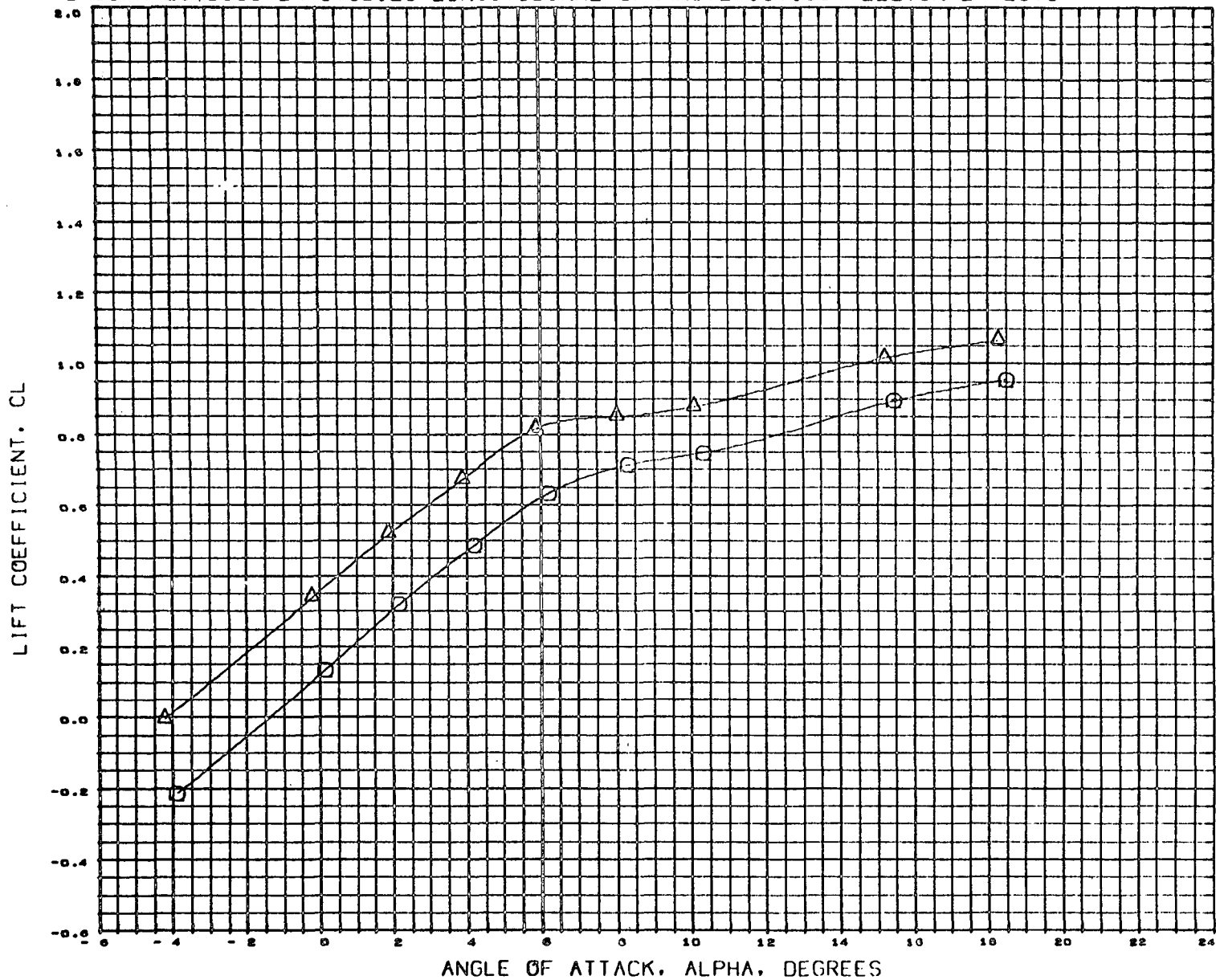
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INC10C	ELEVTR	AILRON	REFERENCE INFORMATION	
(R3093)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	0.000	0.000	SREF	1.3550 SQ.FT.
(R3097)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	20.000	0.000	LREF	3.4530 FEET
						BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.701

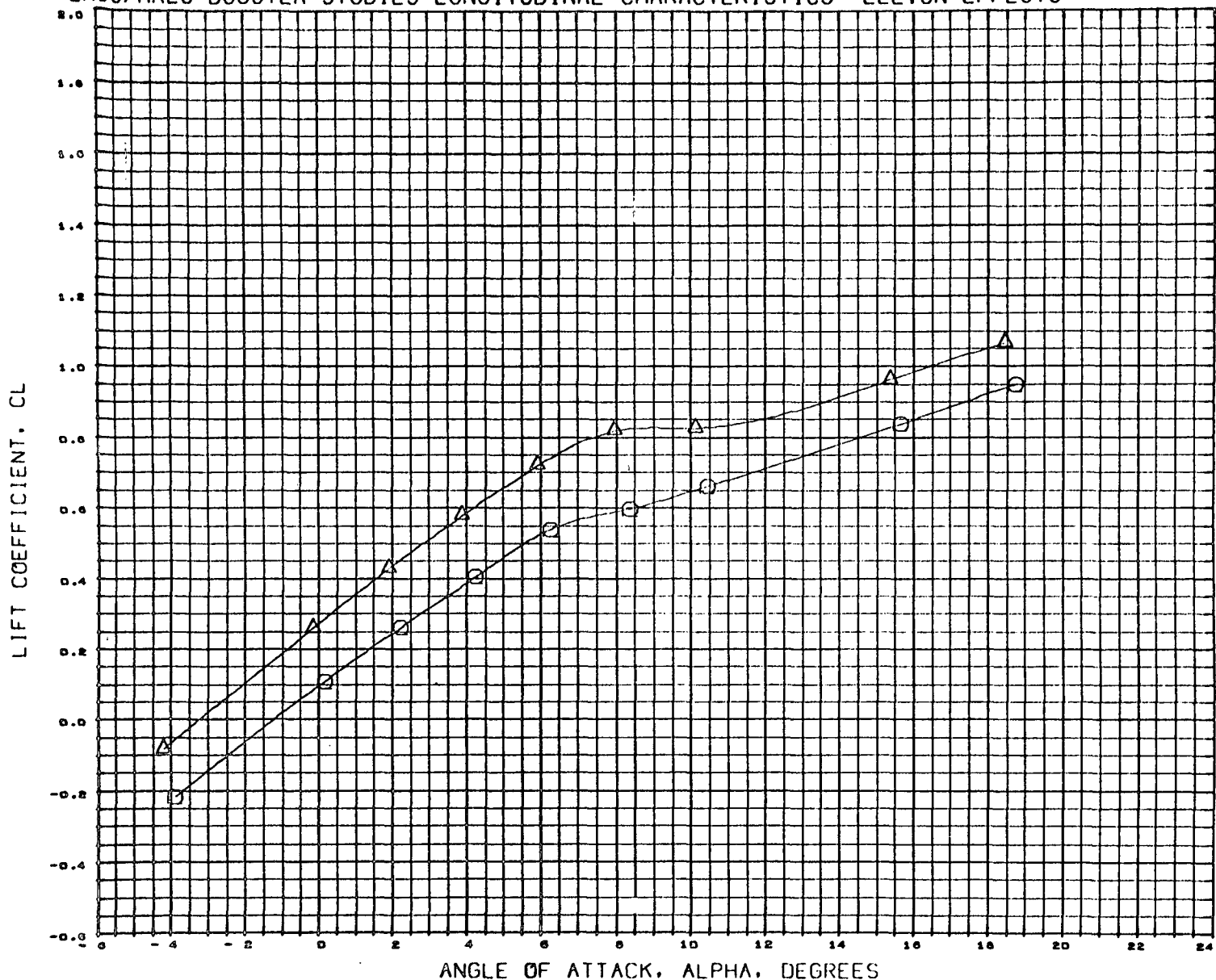
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION	
(RNS055)	NSRDC-3210, H8FC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	0.000	0.000	BREF	1.3550 SQ. FT.
(RNS057)	NSRDC-3210, H8FC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	20.000	0.000	LREF	3.4530 FEET
						BREF	3.4530 FEET
						XMRP	2.5050 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.799

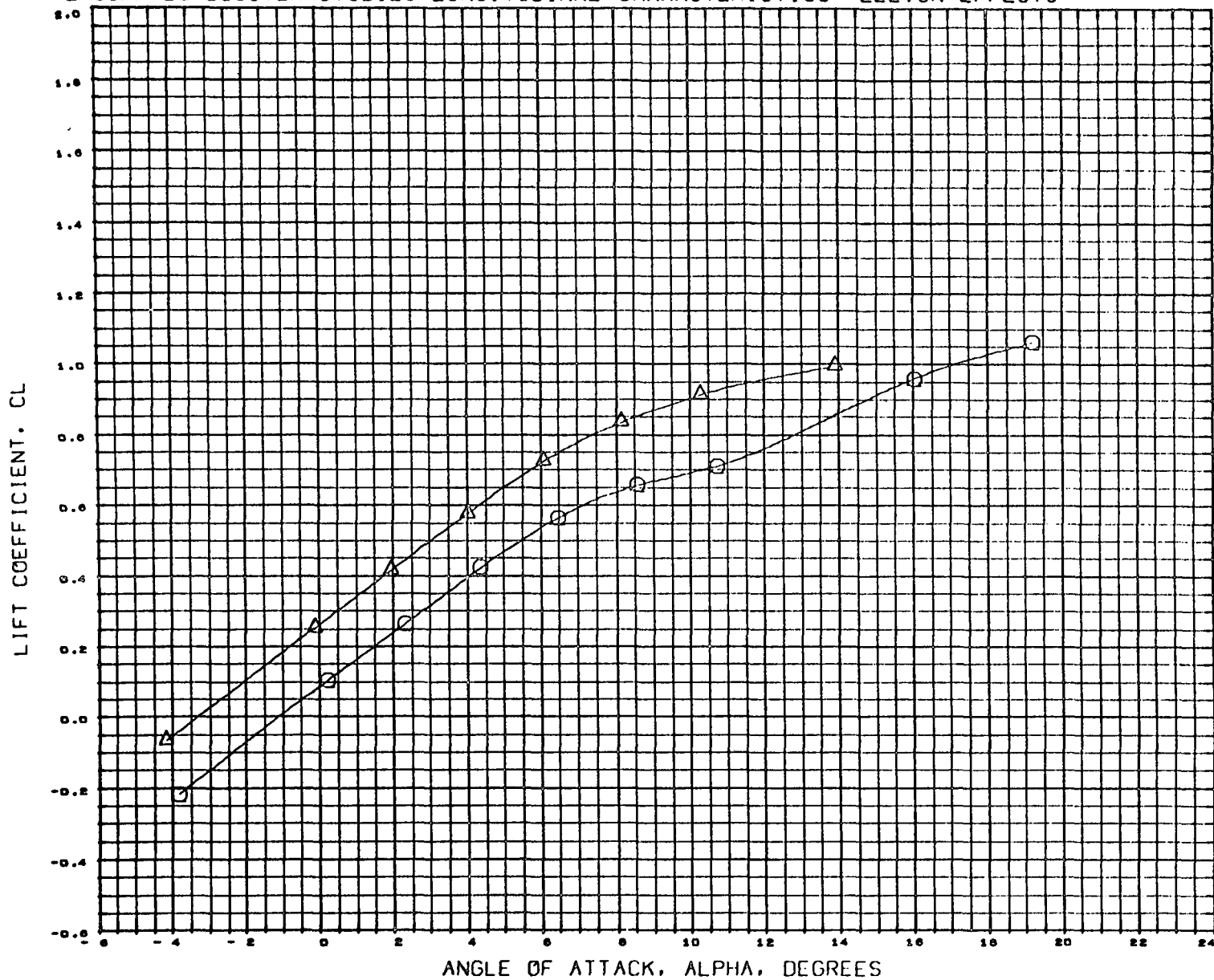
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION	
(RN3053)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	0.000	0.000	BREF	1.3550 SQ.FT.
(RN3057)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	20.000	0.000	LREF	3.4530 FEET
						BREF	3.4530 FEET
						XMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.004

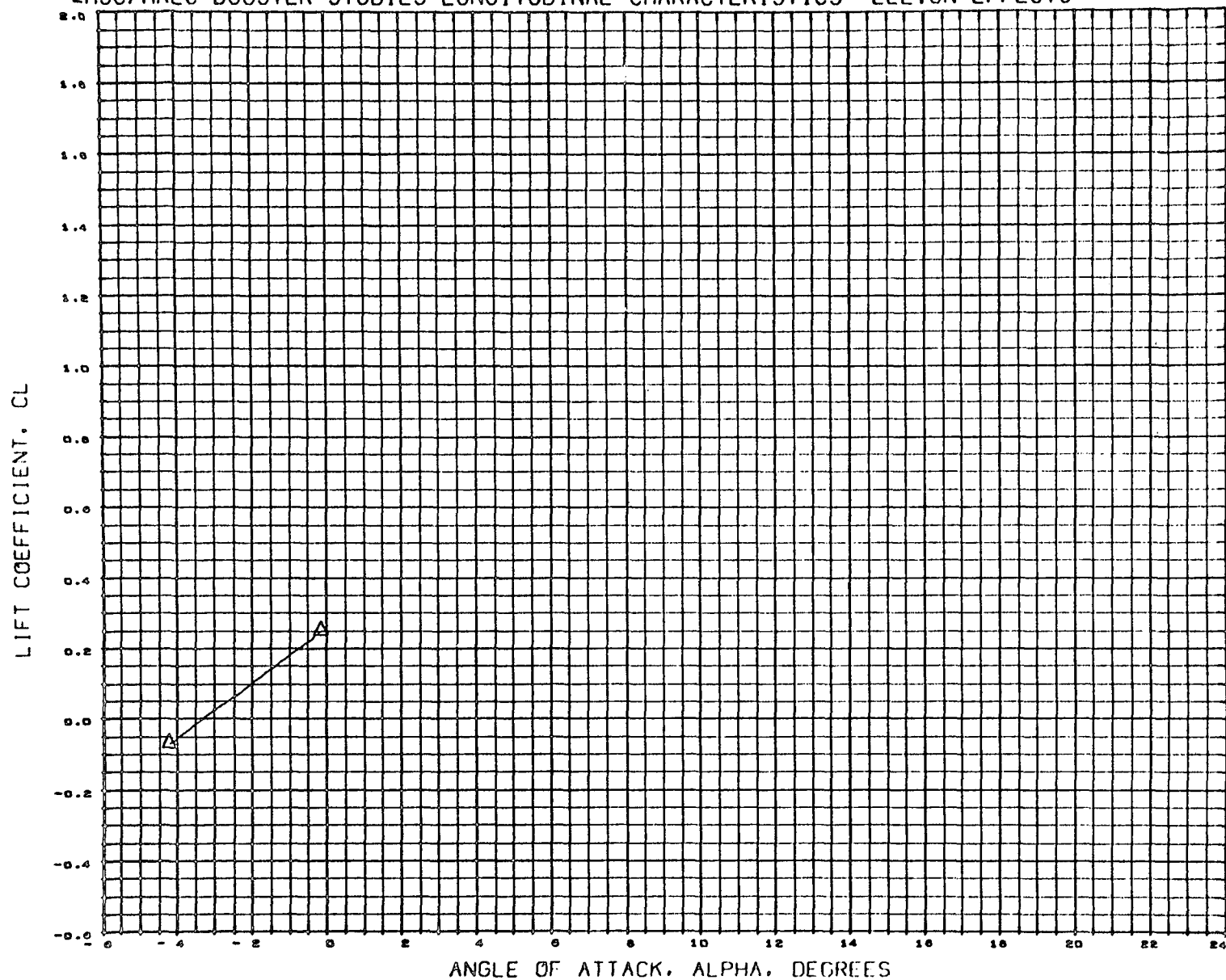
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INC1DC	ELEVTR	AILRON	REFERENCE INFORMATION	
(RMS053)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	0.000	0.000	SREF	1.3550 60.FT.
(RMS057)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	20.000	0.000	LREF	3.4530 FEET
						BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 1.000

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

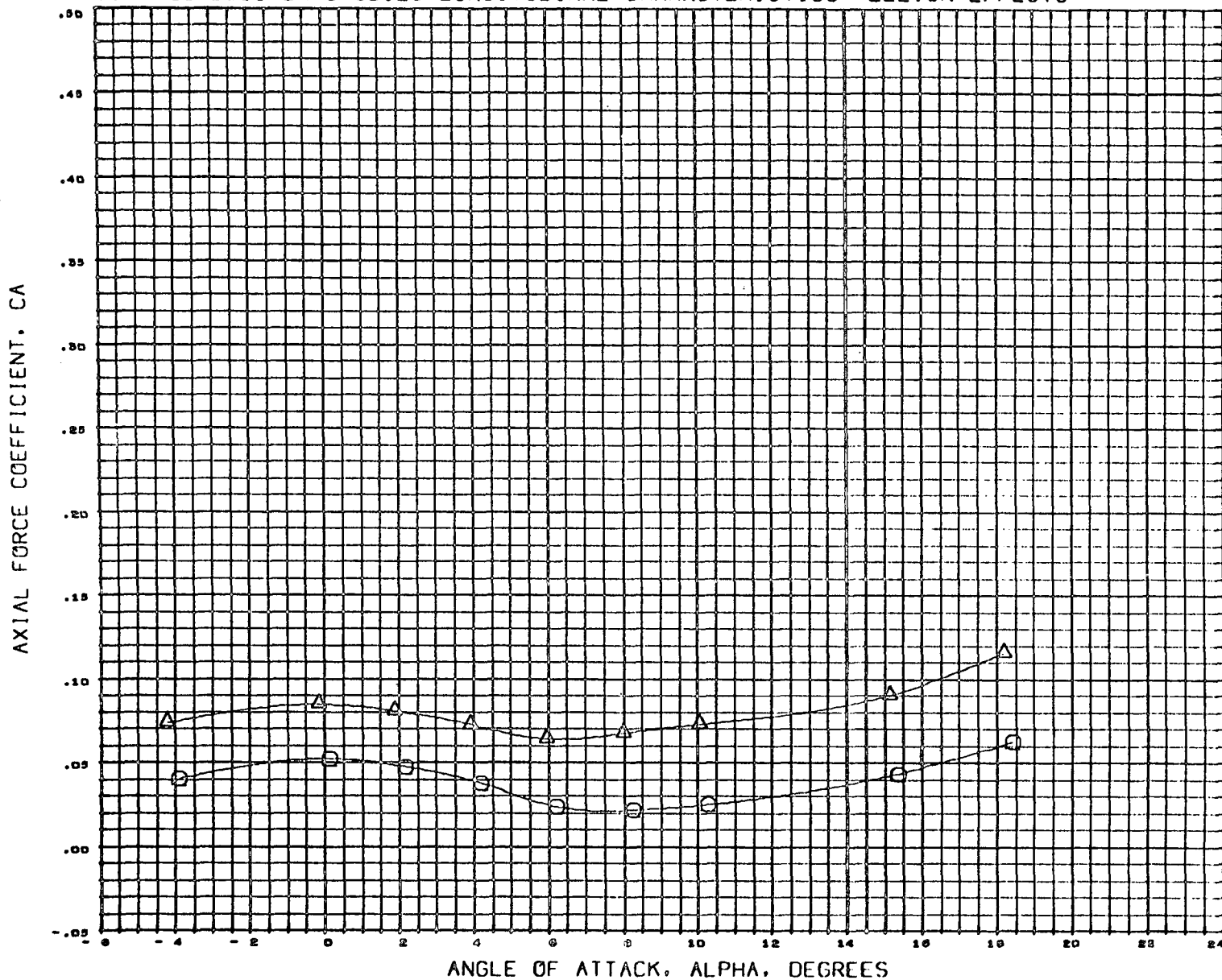


DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (RNB093) DATA NOT AVAILABLE FOR ALL CONDITIONS
 (RNB097) NSRDC-3210, M8FC/LMSC BOOSTER 81C2F2W1V1

CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION
2.000	3.000	0.000	0.000	SREF 1.3550 SQ. FT.
2.000	3.000	20.000	0.000	LREF 3.4530 FEET
				BREF 3.4530 FEET
				XMRP 2.5950 FEET
				YMRP 0.0000 FEET
				ZMRP 0.0167 FEET
				SCALE 0.0190 SCALE

MACH 5.125

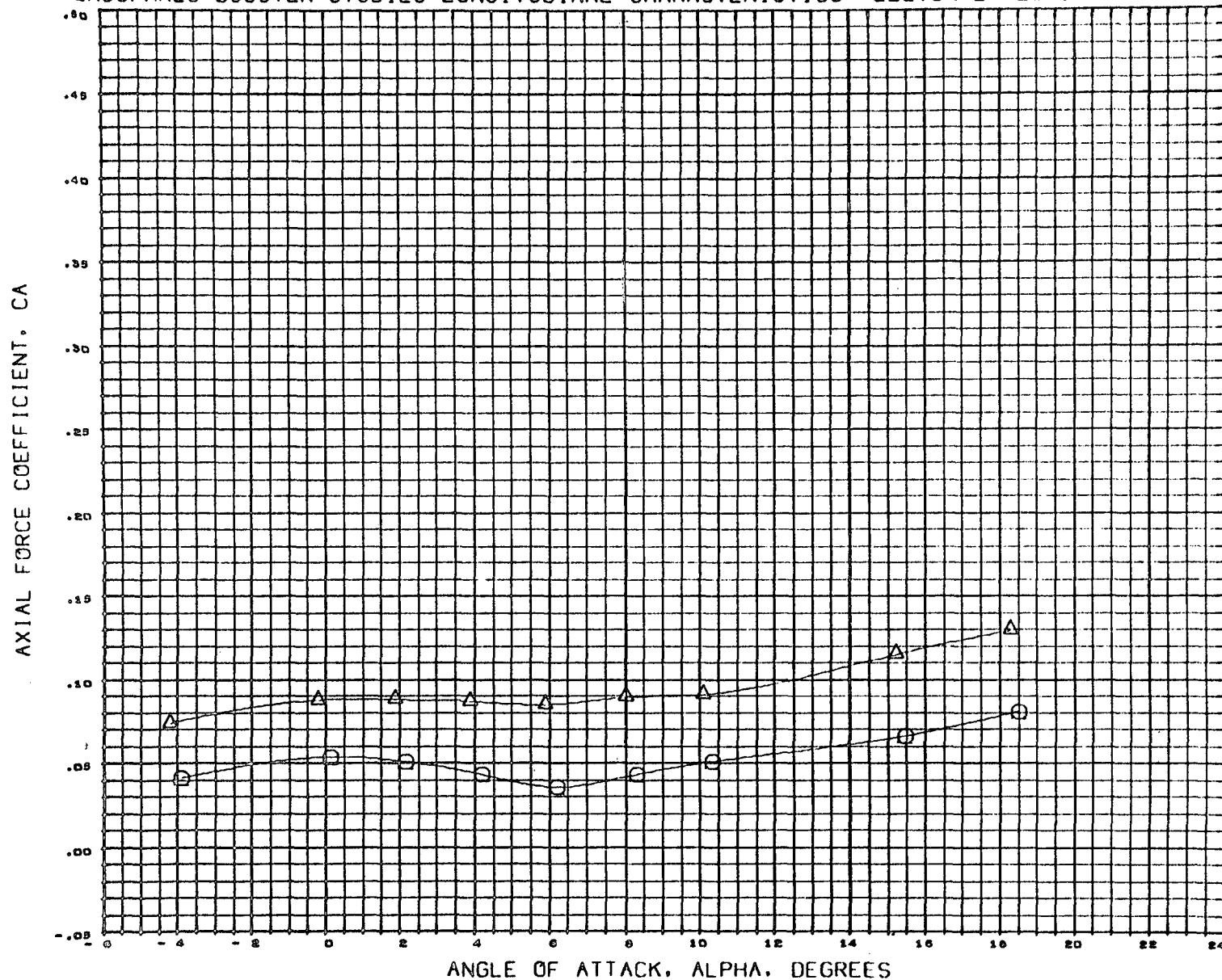
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION	
(RN3053)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	0.000	0.000	SRF	1.3950 SQ.FT.
(RN3057)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	20.000	0.000	LRF	3.4930 FEET
						BRF	3.4930 FEET
						XMRP	2.9990 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.701

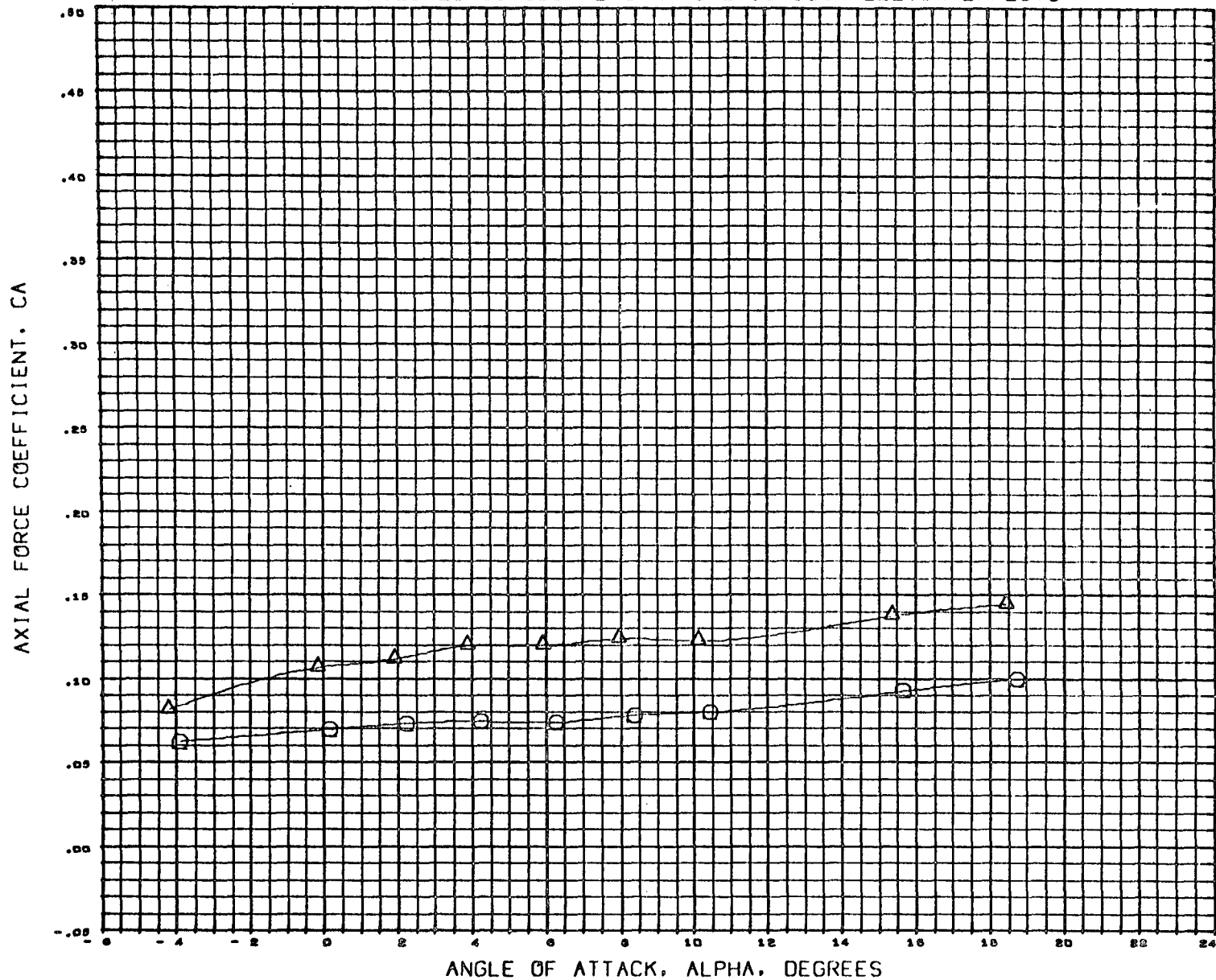
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION	
(RN3053)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3057)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	20.000	0.000	LREF	3.4530 FEET
						BREF	3.4530 FEET
						XMRP	2.5050 FEET
						VMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.700

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

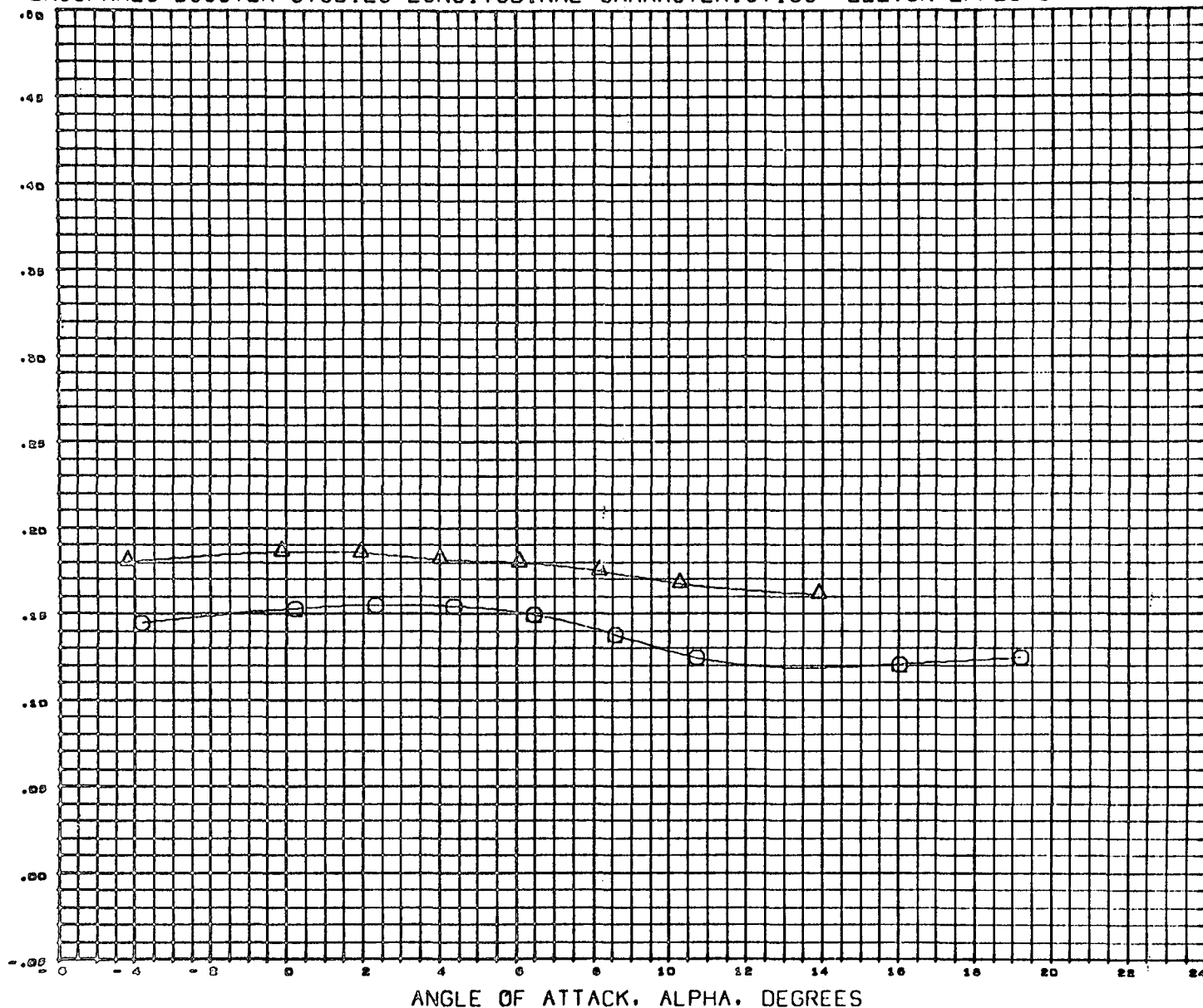


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION	
(RNS055)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	0.000	0.000	BREF	1.3550 66.FT.
(RNS057)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	20.000	0.000	LREF	3.4530 FEET
						BREF	3.4530 FEET
						XMRF	2.5980 FEET
						YMRF	0.0000 FEET
						ZMRF	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.904

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

AXIAL FORCE COEFFICIENT, CA



DATA SET SYMBOL
(RNS005)
(RNS007)



CONFIGURATION DESCRIPTION
NBRDC-0210, M8FC/LM8C BOOSTER B1C2F2W1V1
NBRDC-0210, M8FC/LM8C BOOSTER B1C2F2W1V1

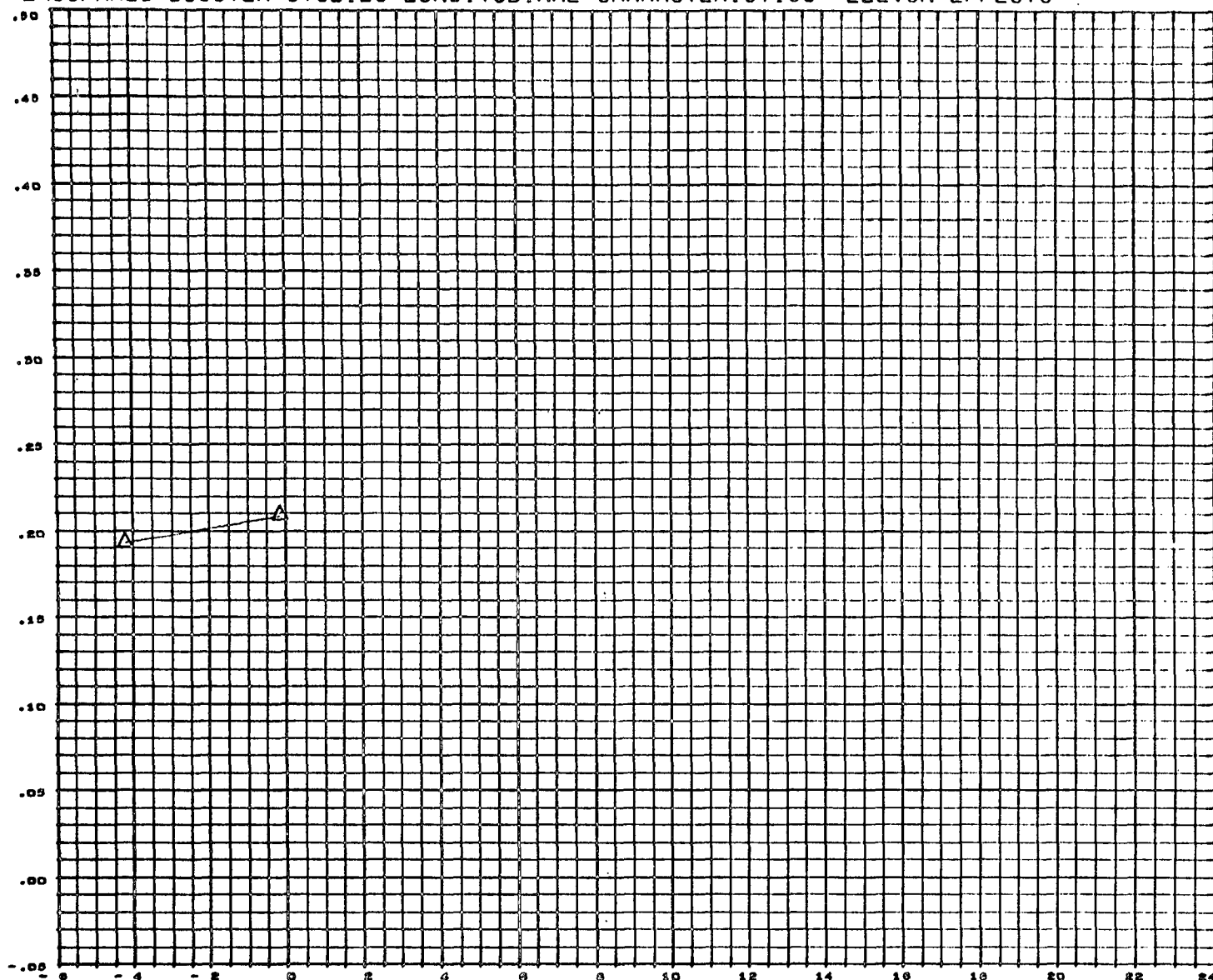
CNDPOS	INC10C	ELEVTR	AILRON
2.000	3.000	0.000	0.000
2.000	3.000	20.000	0.000

REFERENCE INFORMATION		
SREF	1.3550	89. FT.
LREF	3.4550	FEET
BREF	3.4550	FEET
XMRP	2.8950	FEET
YMRP	0.0000	FEET
ZMRP	0.0167	FEET
SCALE	0.0150	SCALE

MACH 1.000

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

AXIAL FORCE COEFFICIENT, CA



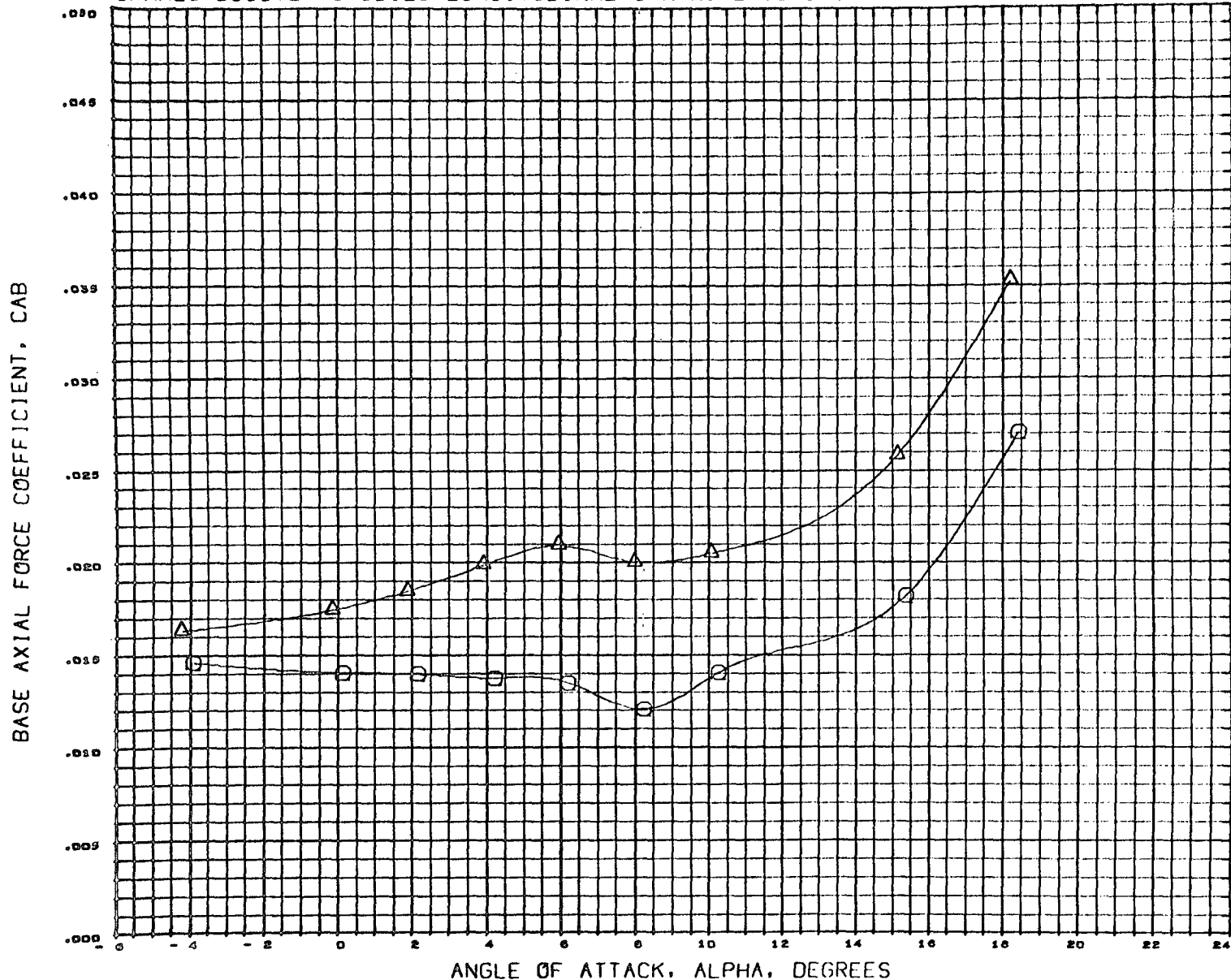
ANGLE OF ATTACK, ALPHA, DEGREES

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (RN3055) DATA NOT AVAILABLE FOR ALL CONDITIONS
 (RN3057) NSRDC-3210, M8FC/LM8C BOOSTER B1C2F2W1V1

CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION
2.000	3.000	0.000	0.000	SREF 1.3550 SQ. FT.
2.000	3.000	20.000	0.000	LREF 3.4330 FEET
				BREF 3.4330 FEET
				YMRP 2.5050 FEET
				ZMRP 0.0000 FEET
				ZMRP 0.0167 FEET
				SCALE 0.0150 SCALE

MACH 1.125

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

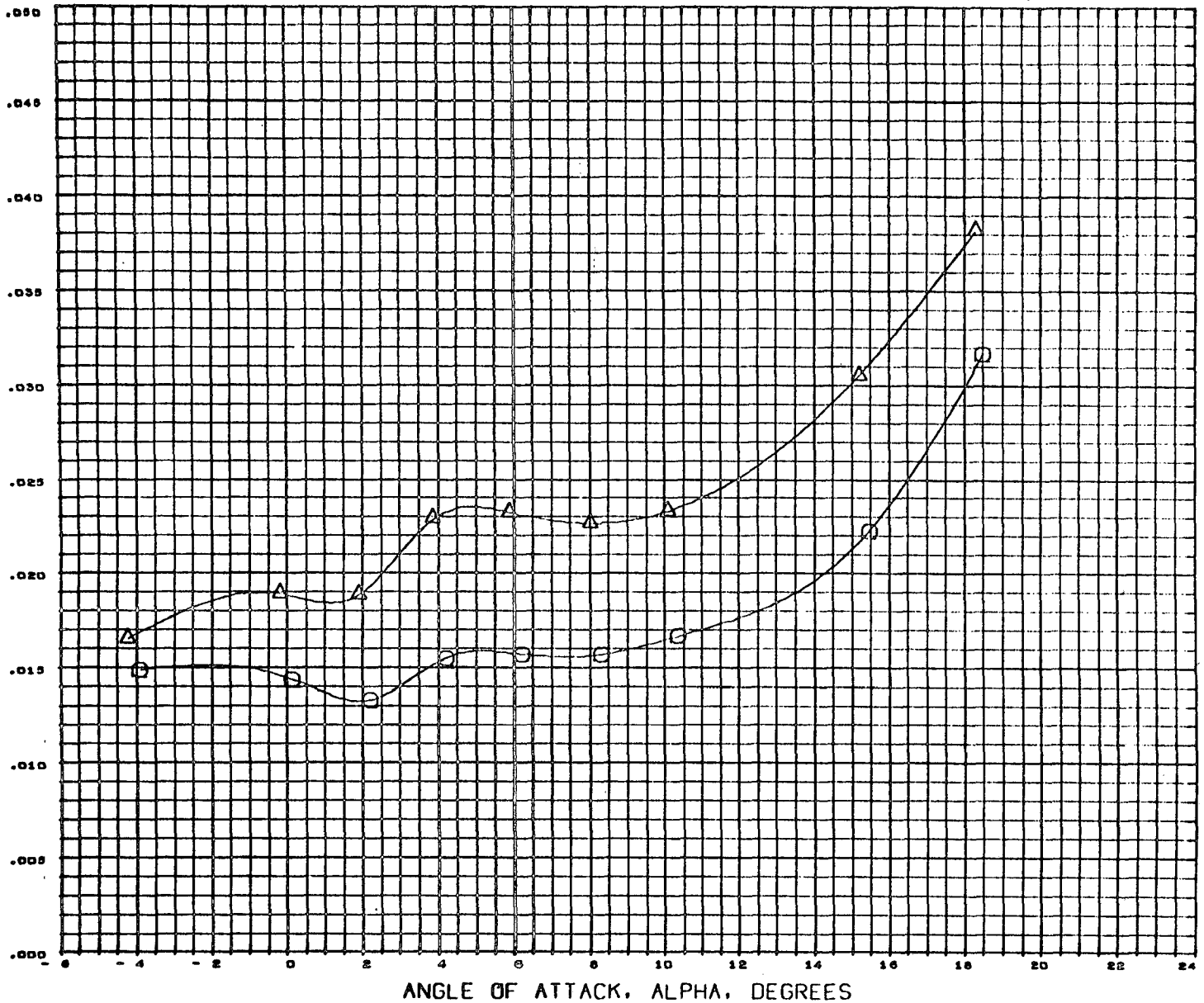


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION	
(RN3093)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	0.000	0.000	SREF	1.3550 SQ. FT.
(RN3097)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	20.000	0.000	LREF	3.4530 FEET
						BREF	3.4530 FEET
						XMRF	2.5950 FEET
						YMRF	0.0000 FEET
						ZMRF	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.701

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

BASE AXIAL FORCE COEFFICIENT, CAB



DATA SET SYMBOL
(RNS053)
(RNS057)



CONFIGURATION DESCRIPTION
NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1
NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1

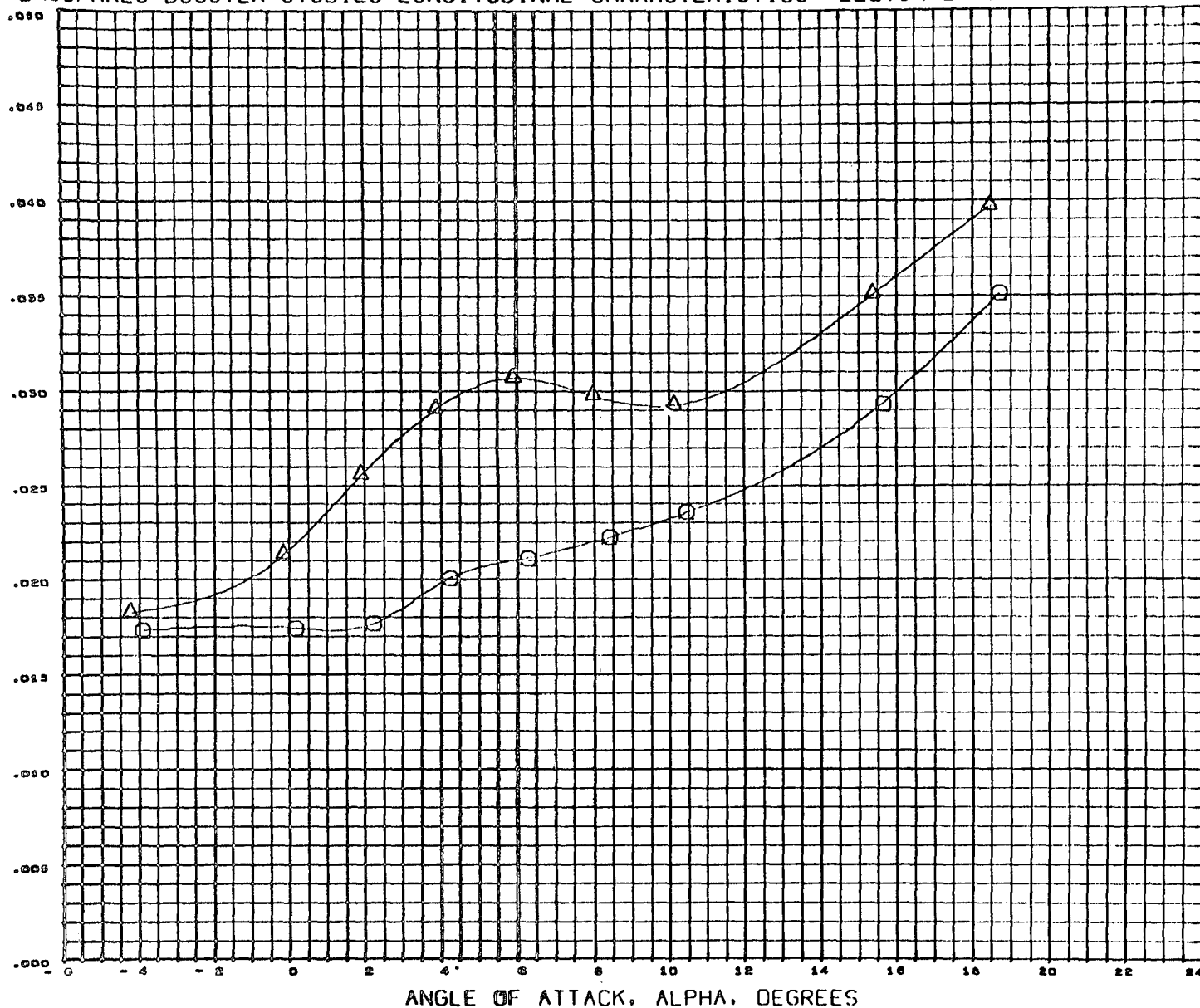
CNDPOS	INCIDC	ELEVTR	AILRON
2.000	3.000	0.000	0.000
2.000	3.000	20.000	0.000

REFERENCE INFORMATION	
SREF	1.3550 89.FT.
LREF	3.4530 FEET
BREF	3.4530 FEET
XMRP	2.3930 FEET
YMRP	0.0000 FEET
ZMRP	0.0167 FEET
SCALE	0.0150 SCALE

MACH 0.799

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

BASE AXIAL FORCE COEFFICIENT, CAB



DATA SET SYMBOL
(R03050)
(R03057)

CONFIGURATION DESCRIPTION
NBRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1
NBRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1

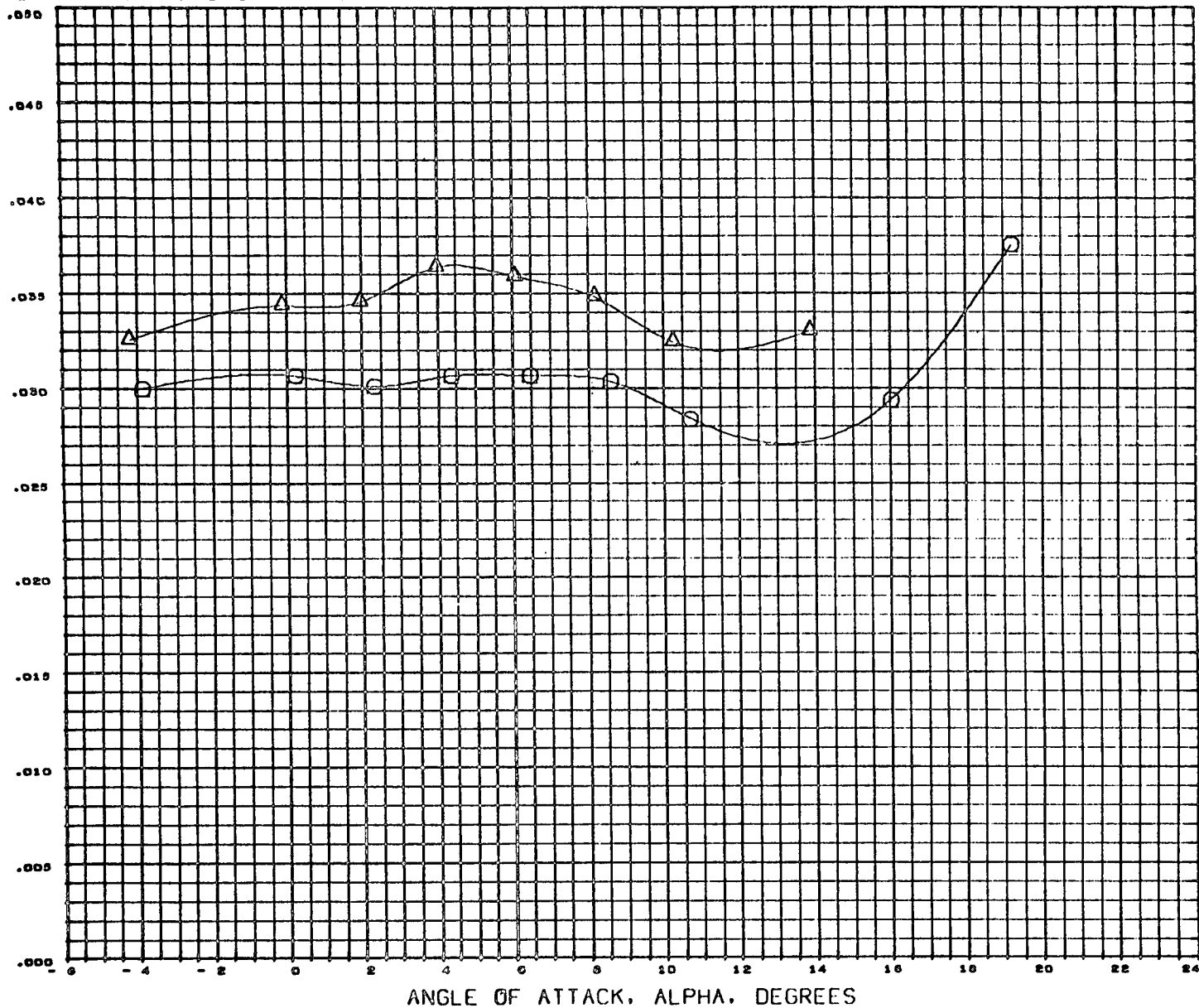
CNDPOS INCIDC ELEVTR AILRON
2.000 3.000 0.000 0.000
2.000 3.000 20.000 0.000

REFERENCE INFORMATION
SREF 1.3550 SQ.FT.
LREF 3.4530 FEET
BREF 3.4530 FEET
XMRP 2.5050 FEET
YMRP 0.0000 FEET
ZMRP 0.0167 FEET
SCALE 0.0150 SCALE

HACH 0.004

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

BASE AXIAL FORCE COEFFICIENT, CAB

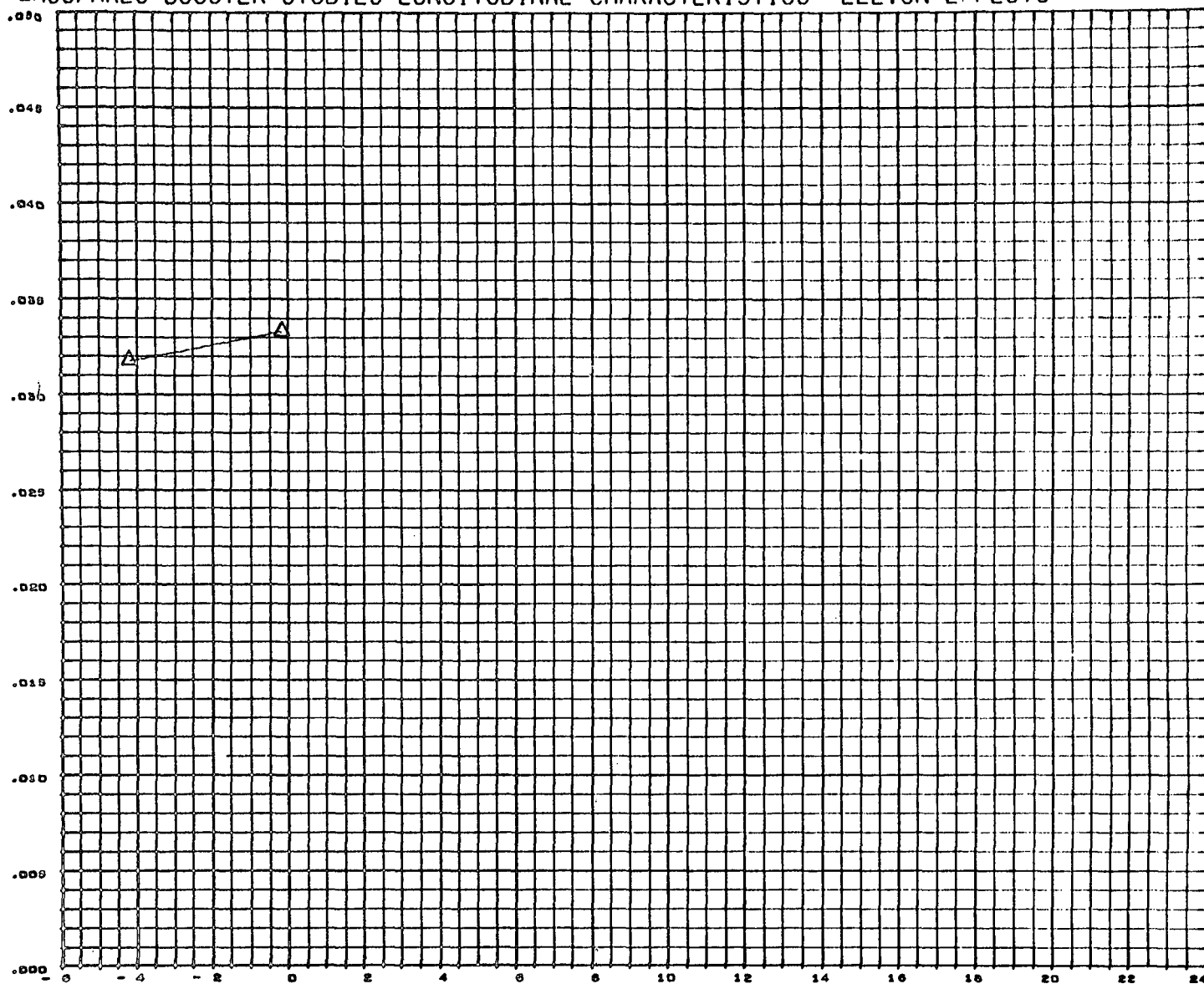


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION	
(RND053)	N8RDC-3210,MSFC/LMSC BOOSTER 01C2F2W1V1	2.000	3.000	0.000	0.000	SREF	1.3950 SQ.FT.
(RND057)	N8RDC-3210,MSFC/LMSC BOOSTER 01C2F2W1V1	2.000	3.000	20.000	0.000	LREF	3.4530 FEET
						BREF	5.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 1.000

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

BASE AXIAL FORCE COEFFICIENT, CAB



ANGLE OF ATTACK, ALPHA, DEGREES

DATA SET SYMBOL
(RNS055)
(RNS057)



CONFIGURATION DESCRIPTION
DATA NOT AVAILABLE FOR ALL CONDITIONS
MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1

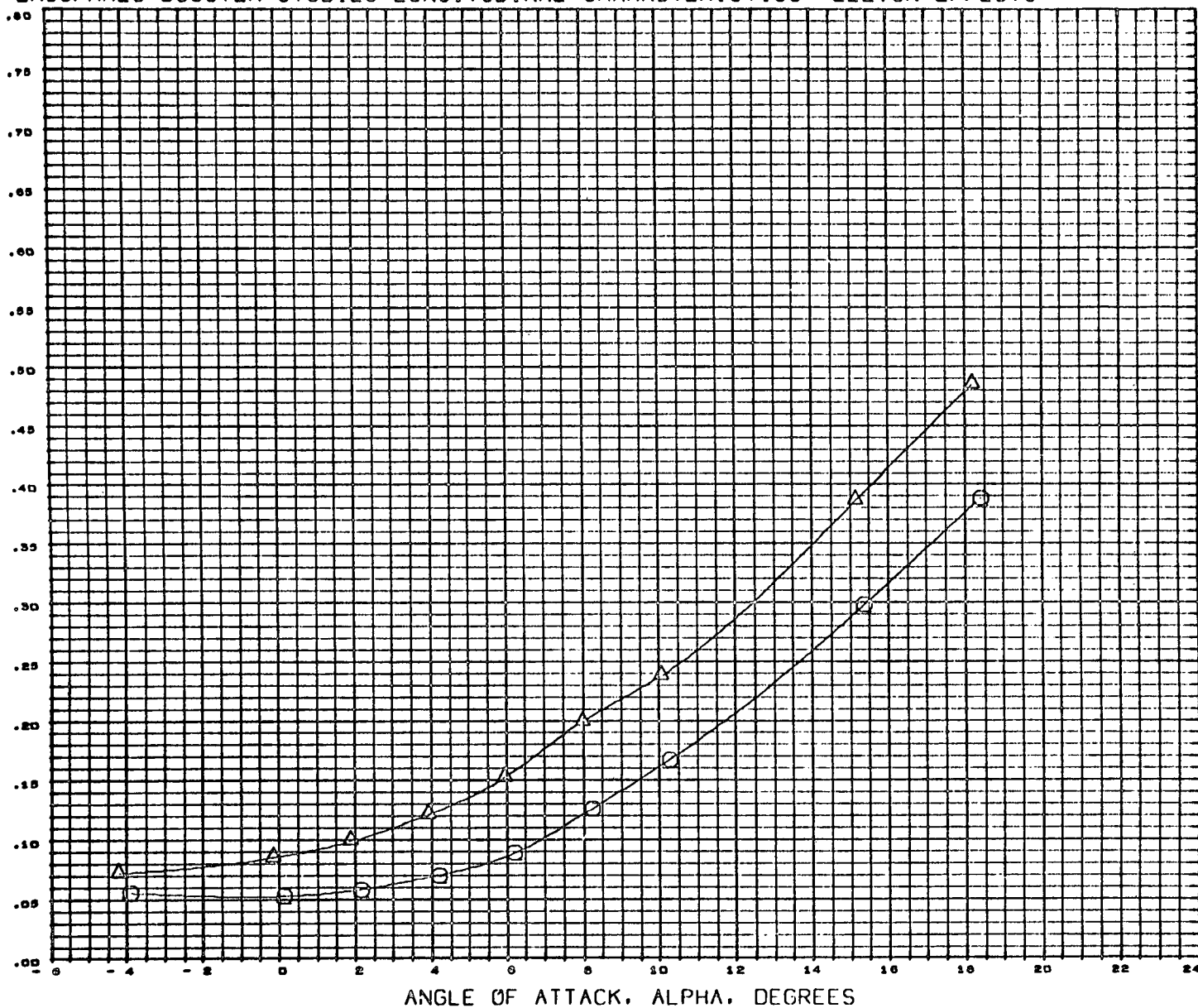
CNDPOS	INCIDC	ELEVTR	AILRON
2.000	3.000	0.000	0.000
2.000	3.000	20.000	0.000

REFERENCE INFORMATION		
SREF	1.3550	SQ. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRF	2.9950	FEET
YMRF	0.0000	FEET
ZMRF	0.0167	FEET
SCALE	0.0150	SCALE

MACH 5.129

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

DRAG COEFFICIENT, CD

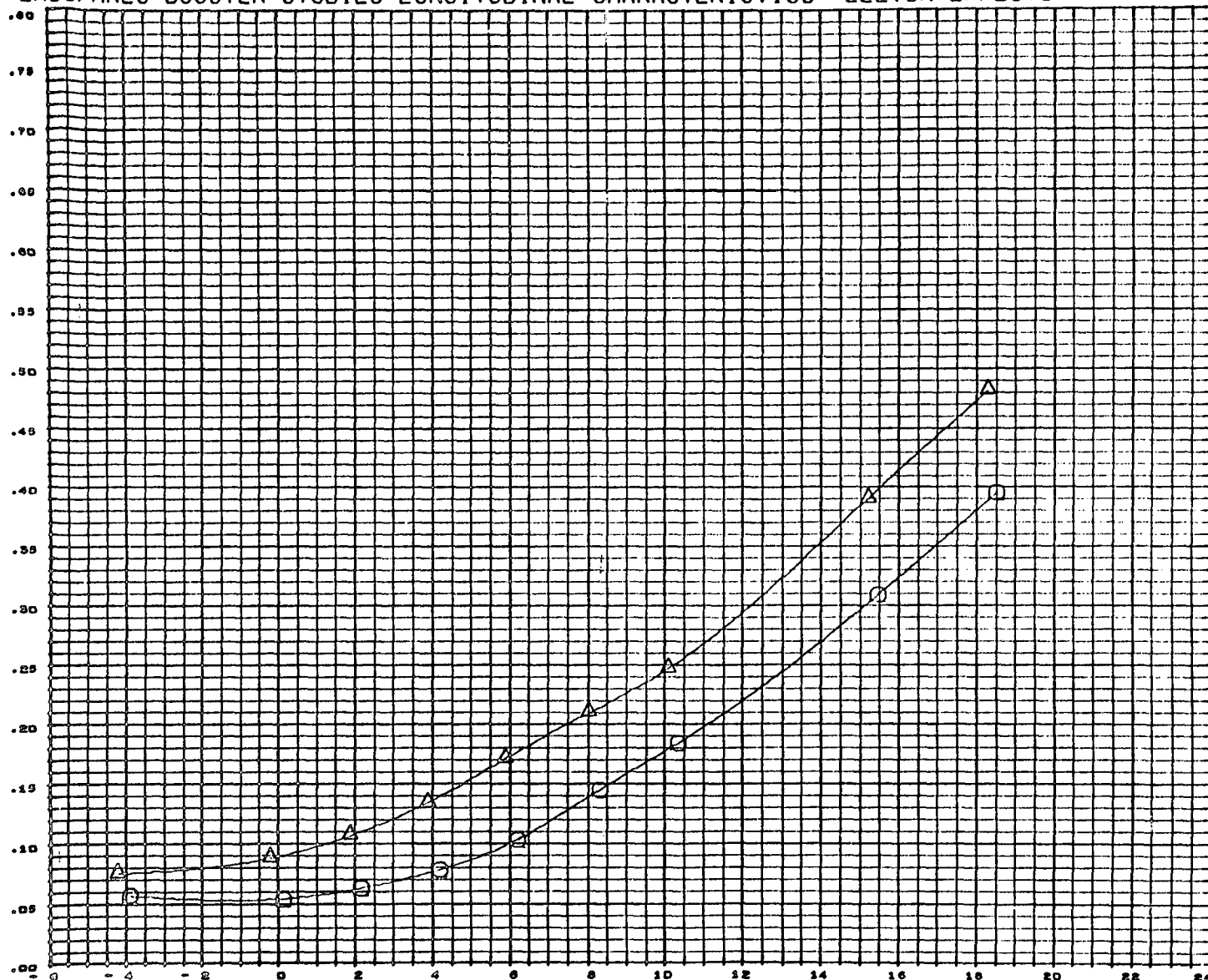


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION	
(RN3055)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3057)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	20.000	0.000	LREF	3.4530 FEET
						BREF	3.4530 FEET
						XMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.701

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

DRAG COEFFICIENT, CD



ANGLE OF ATTACK, ALPHA, DEGREES

DATA SET SYMBOL
(R3055)
(R3057)



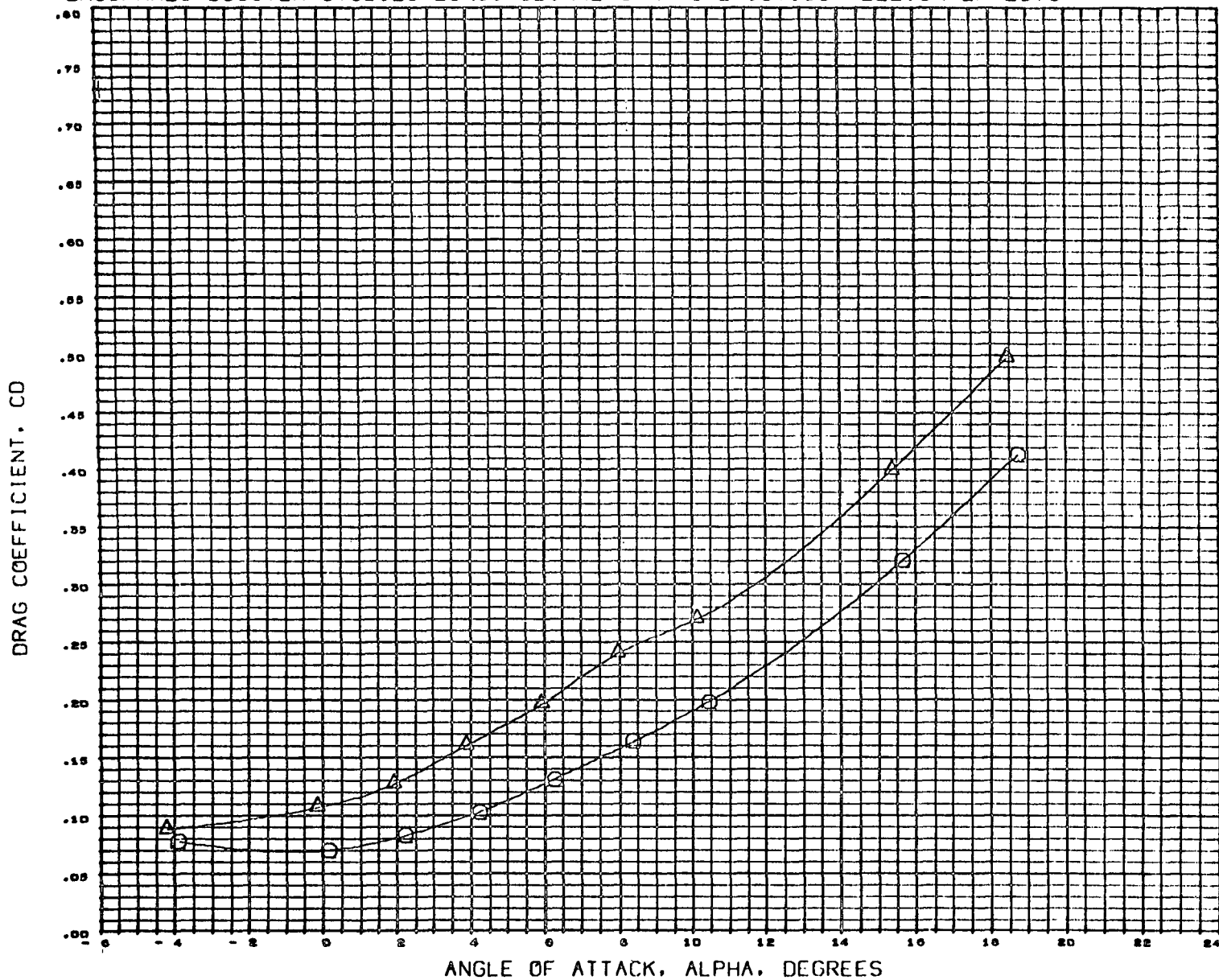
CONFIGURATION DESCRIPTION
NSRDC-3210, MBFC/LMSC BOOSTER B1C2F2W1V1
NSRDC-3210, MBFC/LMSC BOOSTER B1C2F2W1V1

CNDPOS INCIDC ELEVTR AILRON
2.000 3.000 0.000 0.000
2.000 3.000 20.000 0.000

REFERENCE INFORMATION
SREF 1.3550 SQ. FT.
LREF 3.4530 FEET
BREF 3.4530 FEET
XMRP 2.9950 FEET
YMRP 0.0000 FEET
ZMRP 0.0167 FEET
SCALE 0.0150 SCALE

MACH 0.700

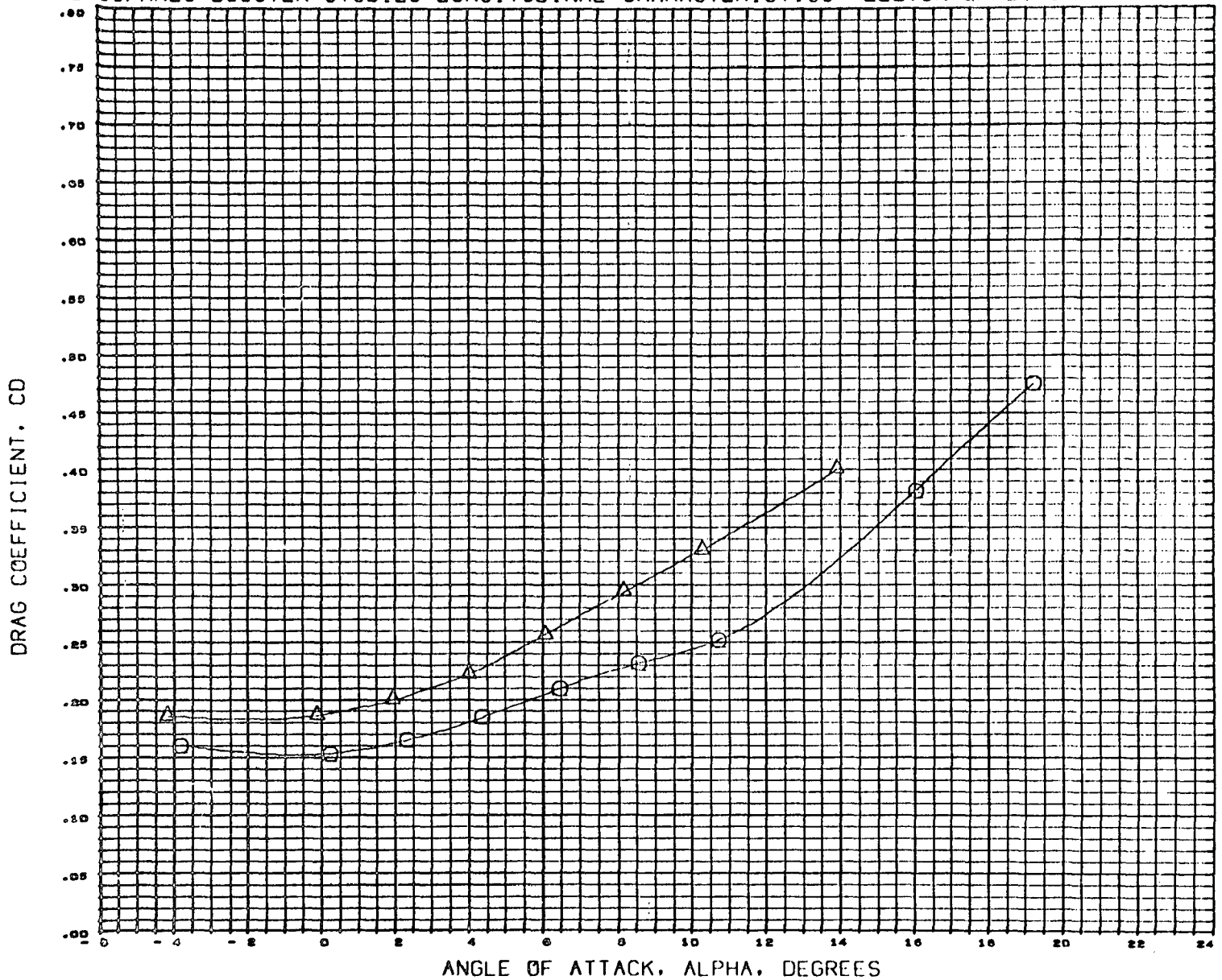
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION	
(RN3055)	NSRDC-3210, M5FC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	0.000	0.000	8REF	1.3550 SQ. FT.
(RN3057)	NSRDC-3210, M5FC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	20.000	0.000	LREF	3.4530 FEET
						BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.904

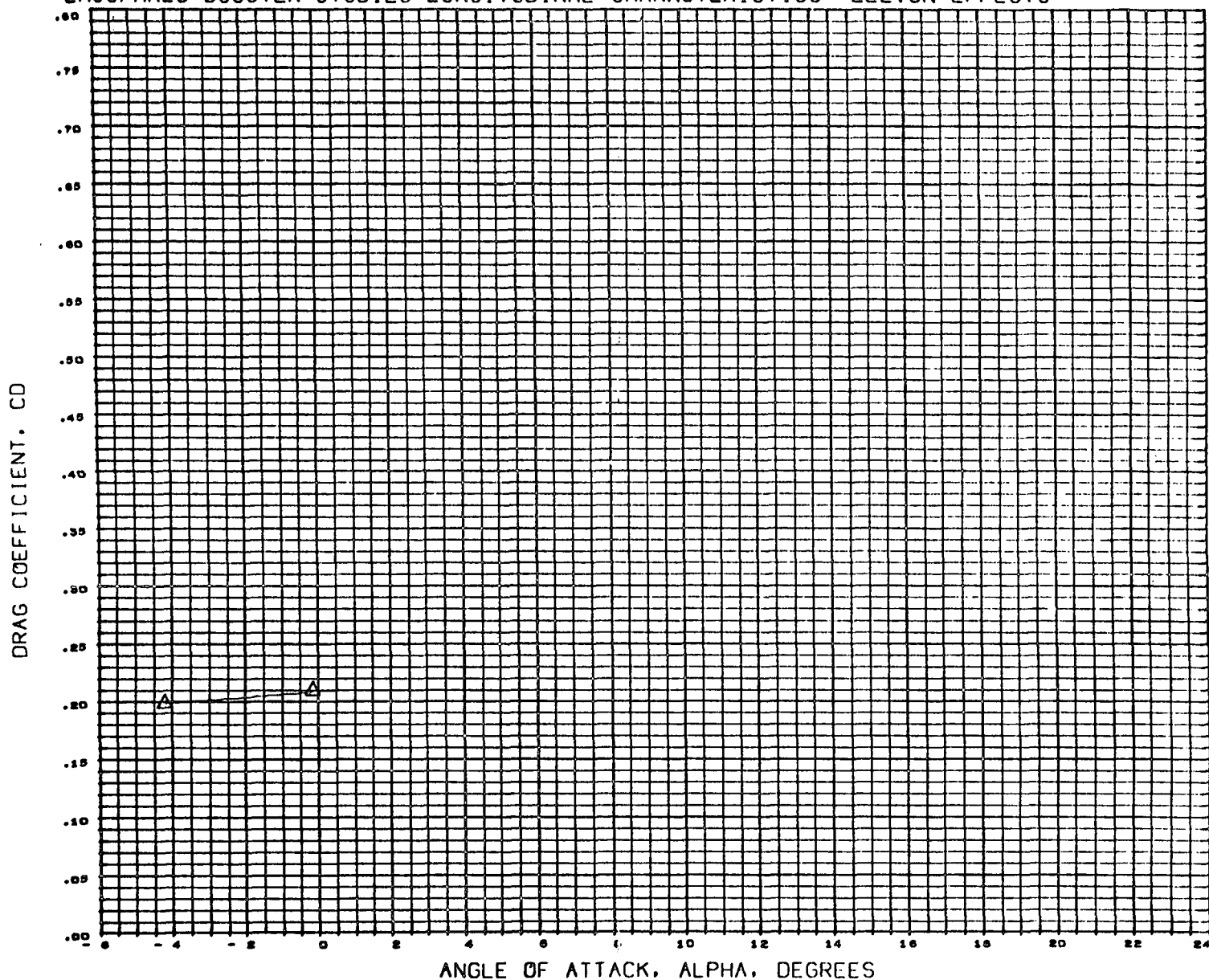
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION	
(RM3055)	NSRDC-3210, M8PC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	0.000	0.000	SREF	1.3550 SQ. FT.
(RM3057)	NSRDC-3210, M8PC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	20.000	0.000	LREF	3.4530 FEET
						BREF	3.4530 FEET
						XMRF	2.5950 FEET
						YMRF	0.0000 FEET
						ZMRF	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 1.000

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

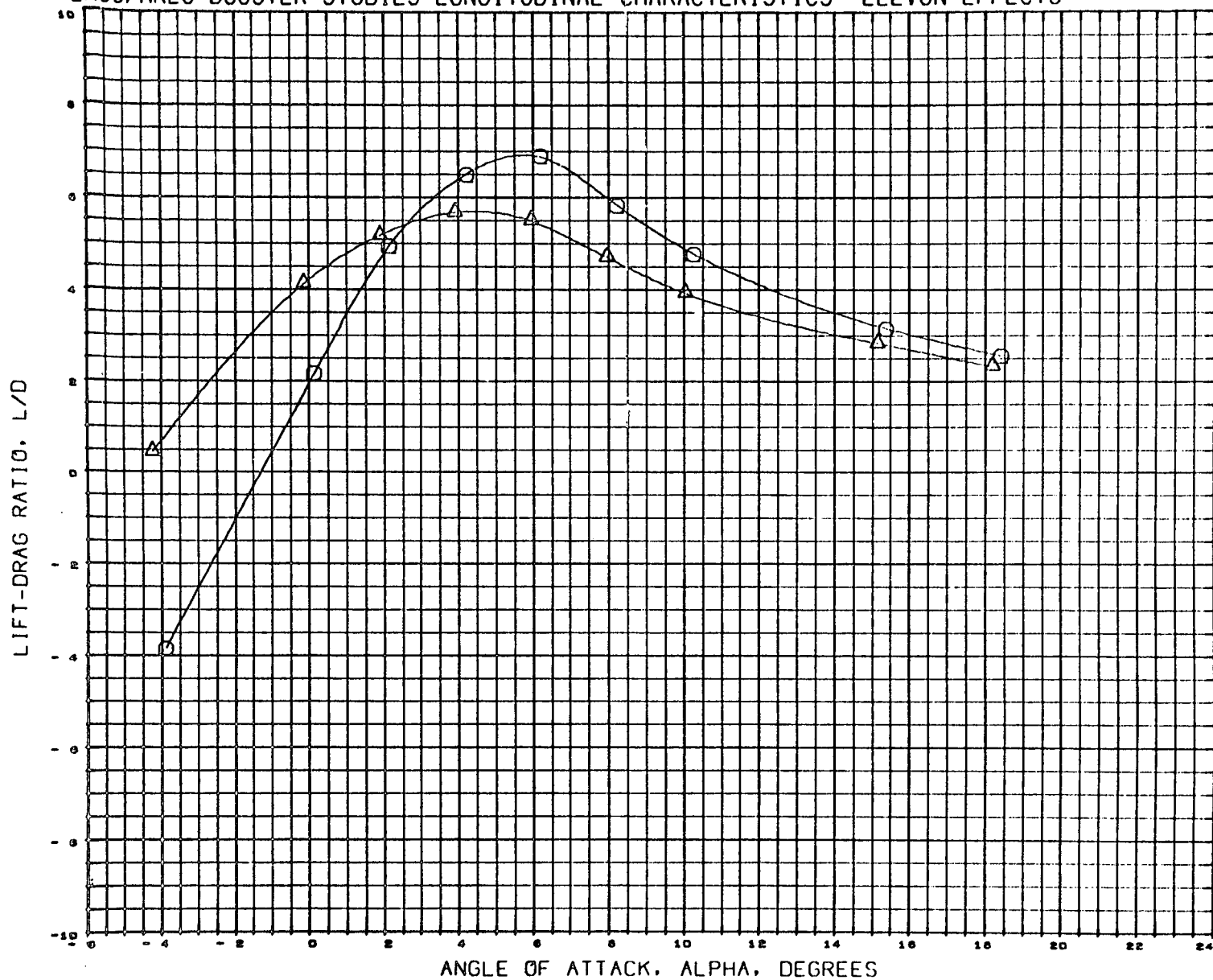


DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (RM3055) DATA NOT AVAILABLE FOR ALL CONDITIONS
 (RM3057) NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1

CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION
2.000	3.000	0.000	0.000	SREF 1.3550 SQ. FT.
2.000	3.000	20.000	0.000	LREF 3.4530 FEET
				BREF 3.4530 FEET
				XMRP 2.9950 FEET
				YMRP 0.0000 FEET
				ZMRP 0.0167 FEET
				SCALE 0.0190 SCALE

MACH 1.125

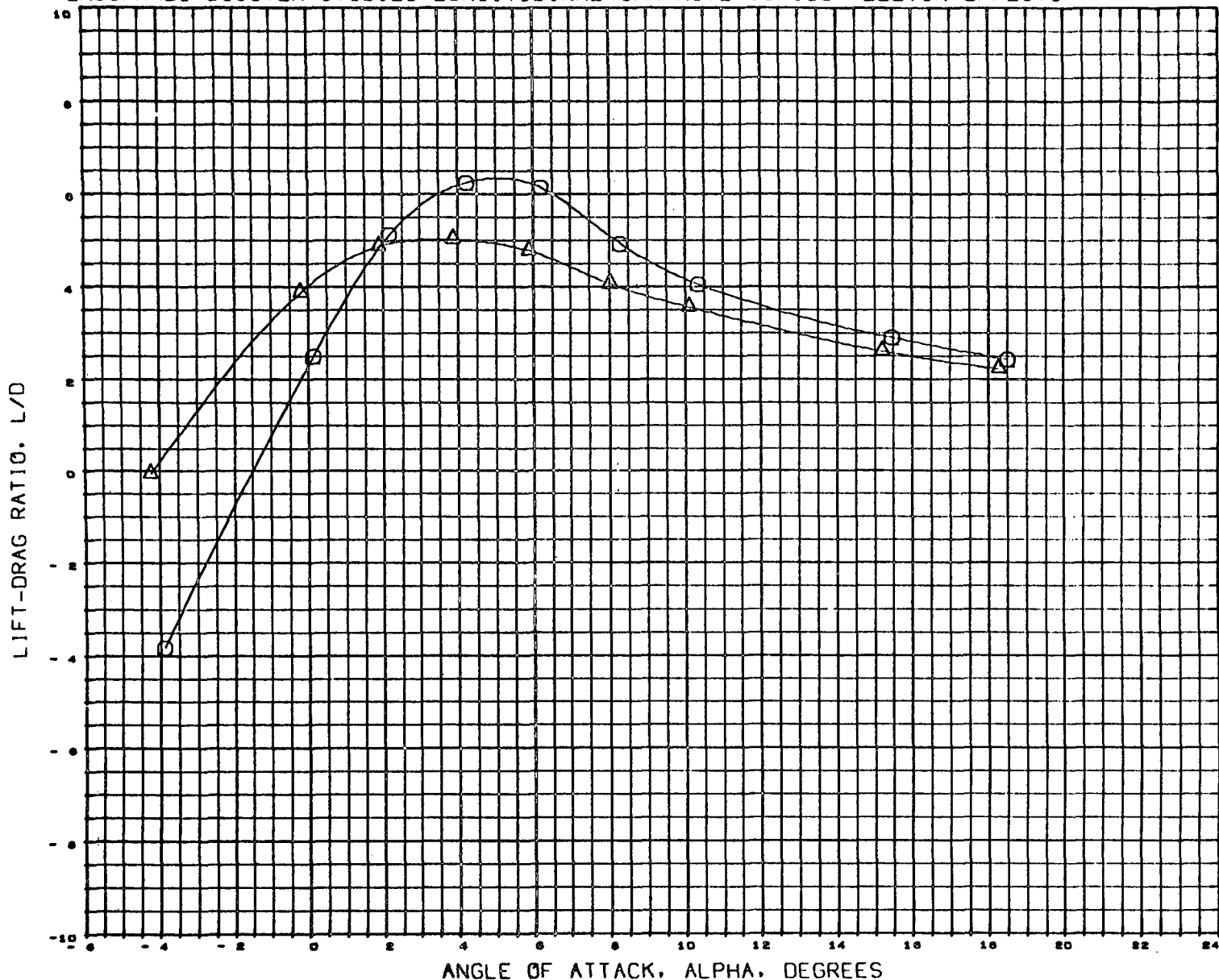
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION	
(RNS050)	NSRDC-3210, M8FC/LMSC BOOSTER 01C2F2W1V1	2.000	3.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RNS057)	NSRDC-3210, M8FC/LMSC BOOSTER 01C2F2W1V1	2.000	3.000	20.000	0.000	LREF	3.4550 FEET
						BREF	3.4550 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.701

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

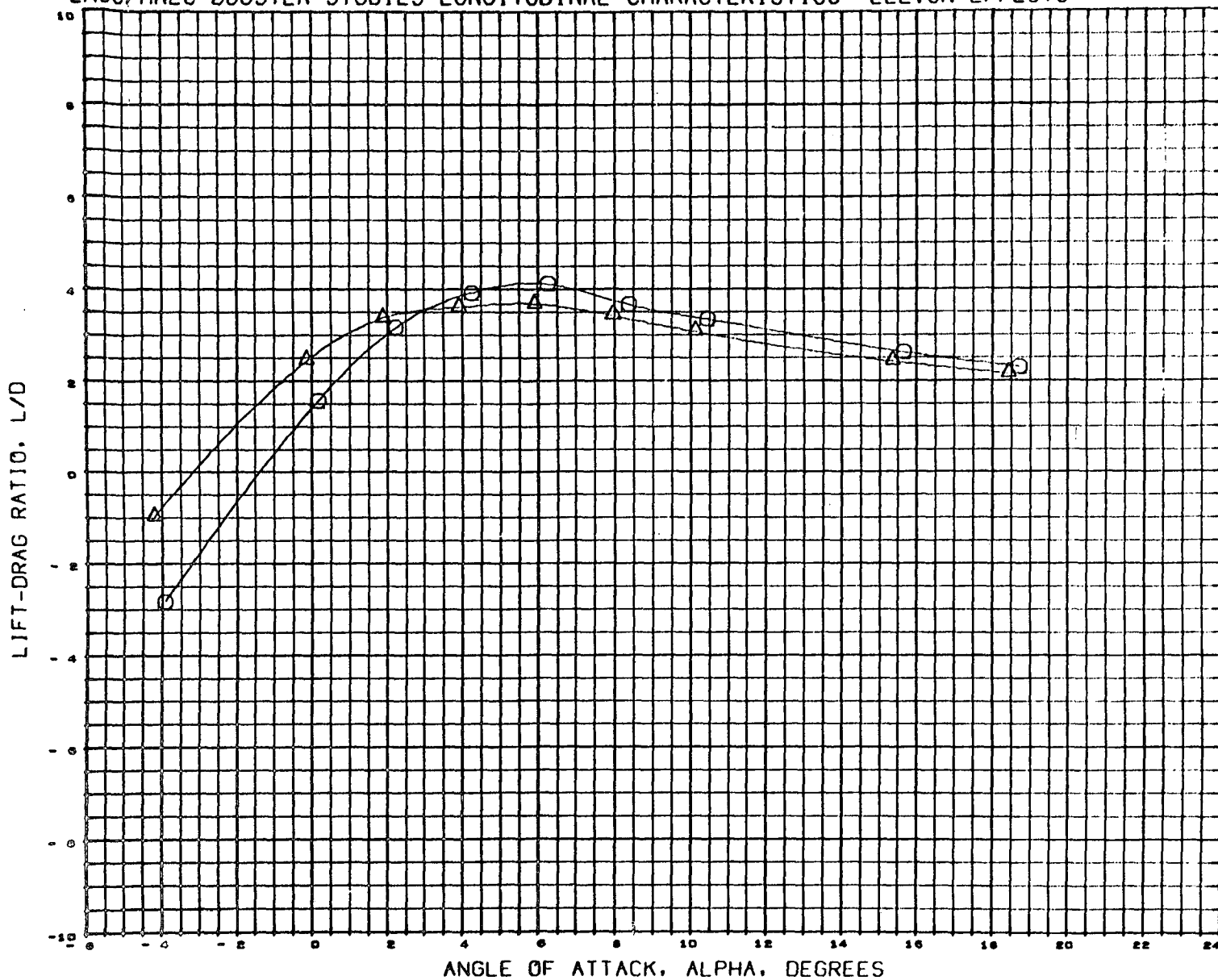


DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (RNS053) ○ NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1
 (RNS057) Δ NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1

CONDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION
2.000	3.000	0.000	0.000	SREF 1.3550 SQ.FT.
2.000	3.000	20.000	0.000	LREF 3.4530 FEET
				BREF 3.4530 FEET
				XMRP 2.5950 FEET
				YMRP 0.0000 FEET
				ZMRP 0.0167 FEET
				SCALE 0.0150 SCALE

MACH 0.799

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL
(RNS053)
(RNS057)



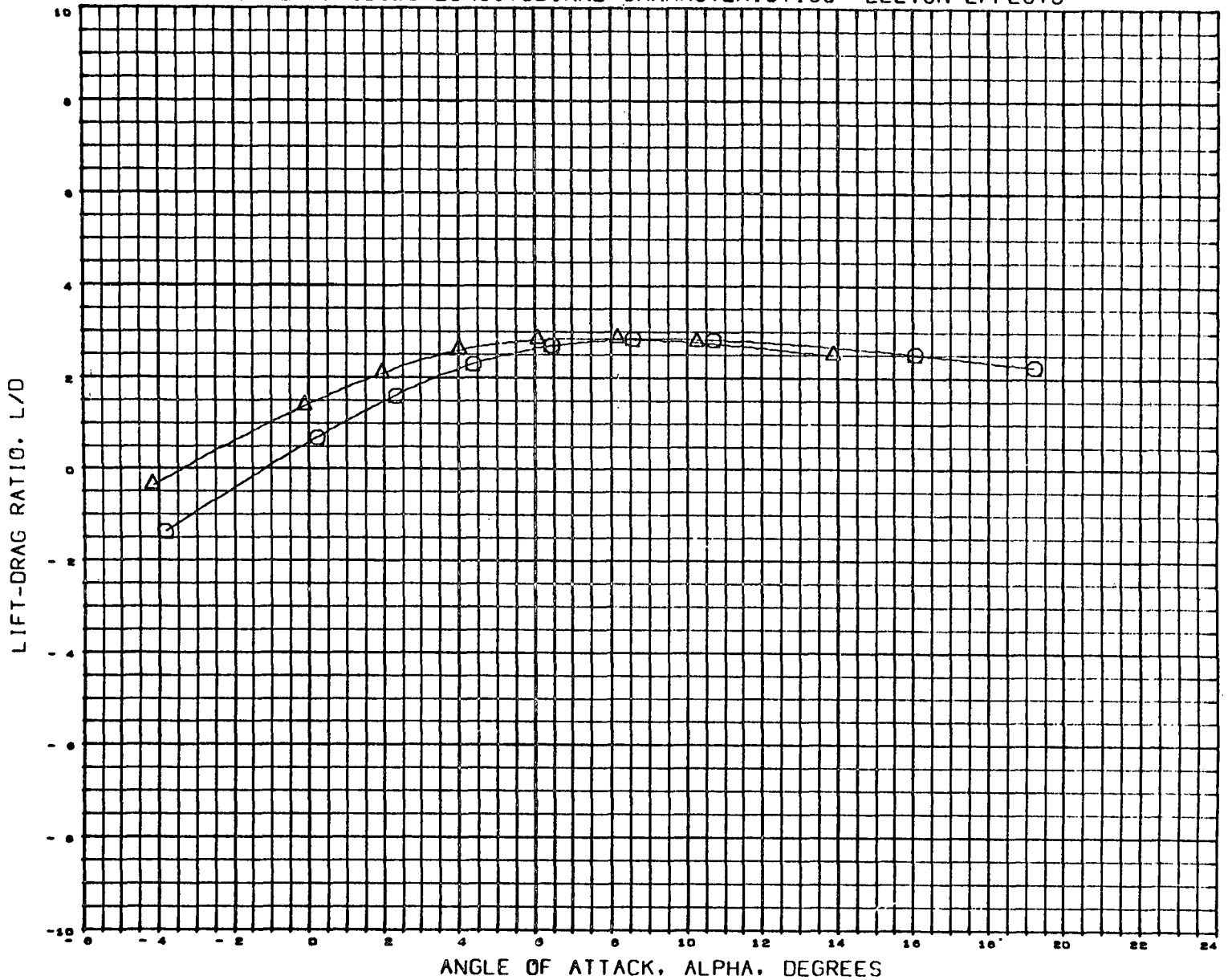
CONFIGURATION DESCRIPTION
NBRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1
NBRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1

CNDPOS	INCIDC	ELEVTR	AILRON
2.000	3.000	0.000	0.000
2.000	3.000	20.000	0.000

REFERENCE INFORMATION	
SREF	1.3550 SQ. FT.
LREF	3.4530 FEET
BREF	3.4530 FEET
XMRP	2.5950 FEET
YMRP	0.0000 FEET
ZMRP	0.0167 FEET
SCALE	0.0150 SCALE

MACH 0.904

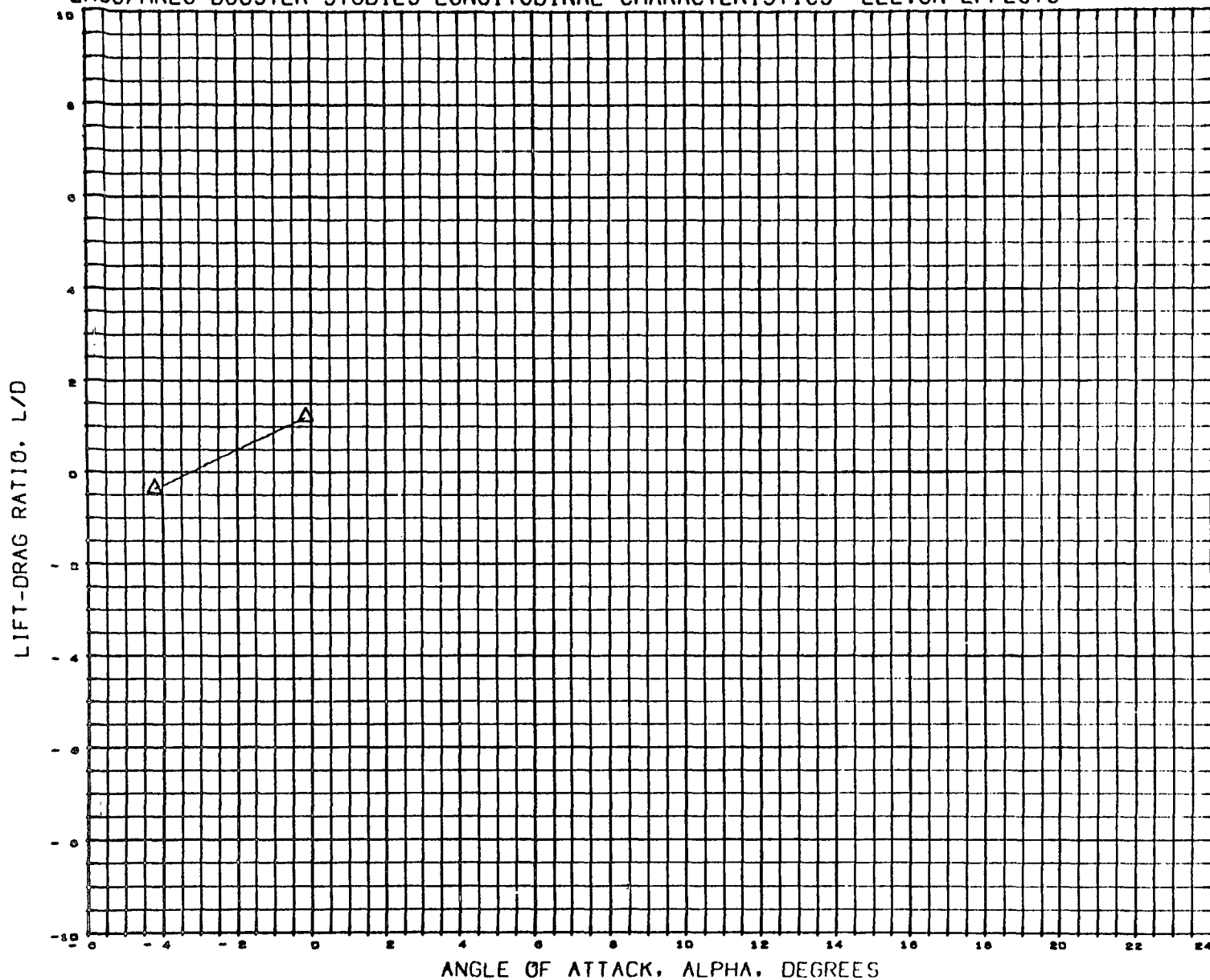
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INCDC	ELEVTR	AILRON	REFERENCE INFORMATION
(RN3053)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	0.000	0.000	SREF 1.3550 80.FT.
(RN3057)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	20.000	0.000	LREF 3.4530 FEET
						BREF 3.4530 FEET
						XMRP 2.5960 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0167 FEET
						SCALE 0.0150 SCALE

MACH 1.000

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

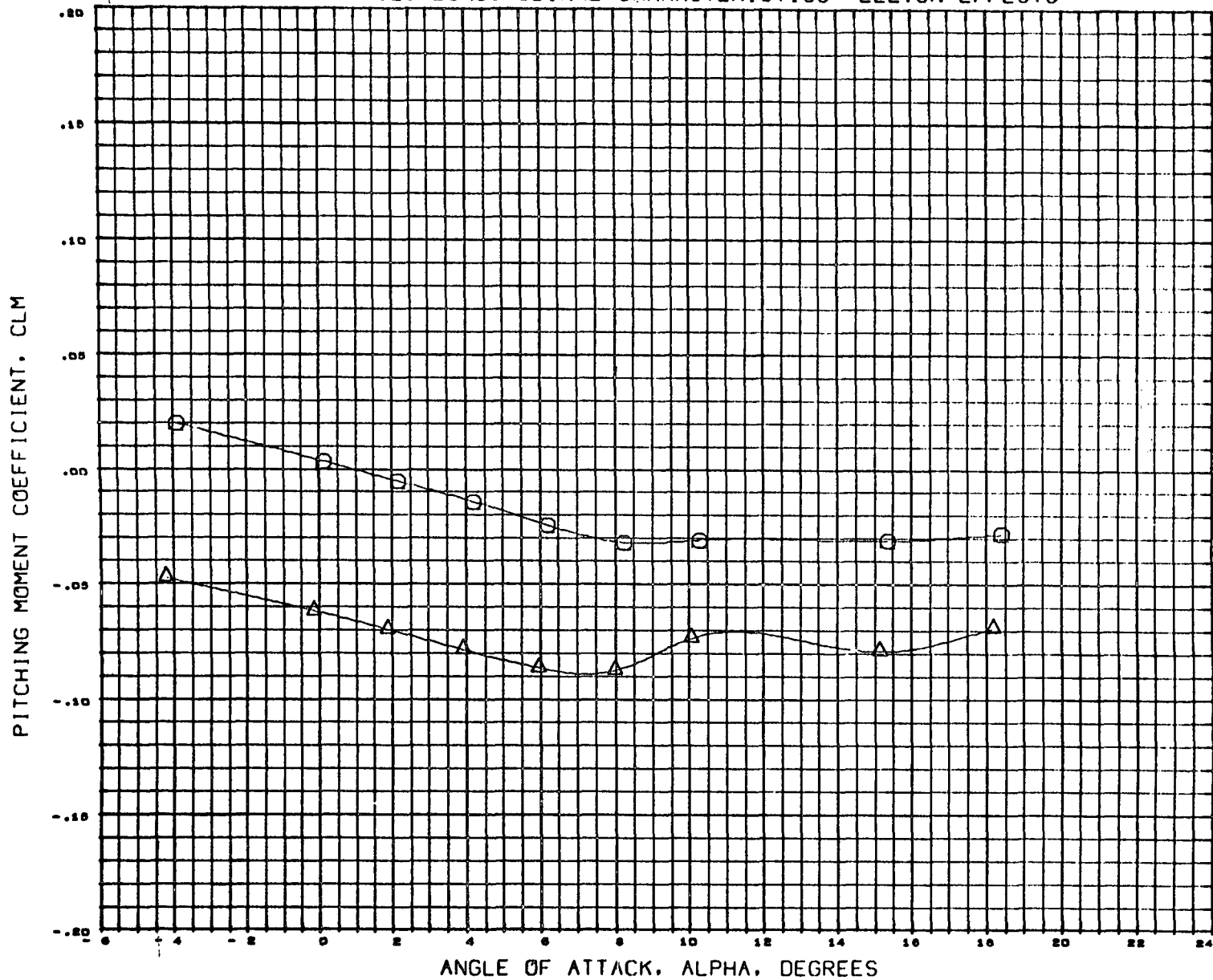


DATA SET SYMBOL: (R3053) (R3057)
 CONFIGURATION DESCRIPTION: DATA NOT AVAILABLE FOR ALL CONDITIONS
 NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1

CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION
2.000	3.000	0.000	0.000	SREF 1.3550 SQ.FT.
2.000	3.000	20.000	0.000	LREF 3.4550 FEET
				BREF 3.4550 FEET
				XMRP 2.5950 FEET
				YMRP 0.0000 FEET
				ZMRP 0.0167 FEET
				SCALE 0.0150 SCALE

MACH 5.125

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL
(RNS053)
(RNS057)



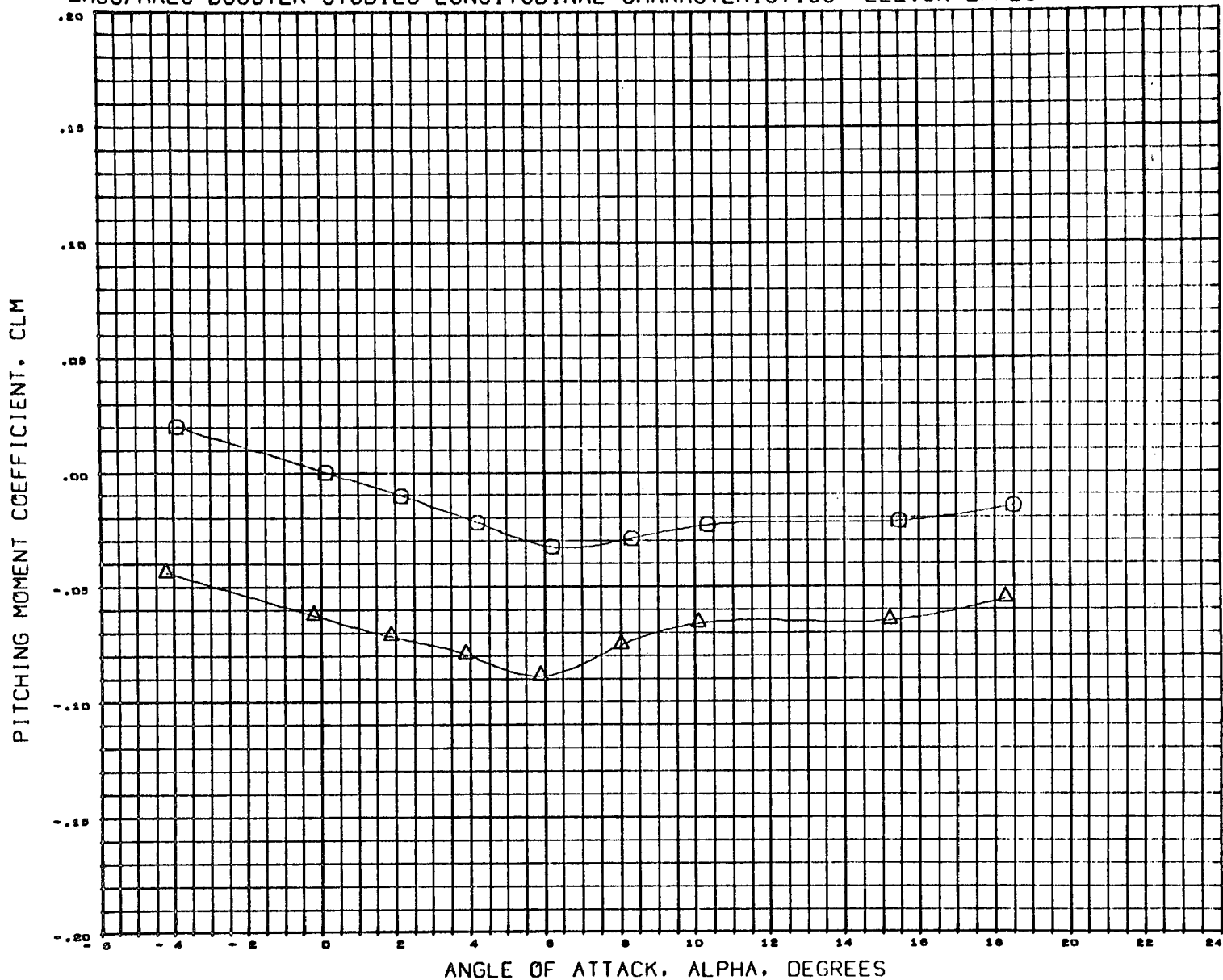
CONFIGURATION DESCRIPTION
NBRDC-3210, M8FC/LM8C BOOSTER B1C2F3W1V1
NBRDC-3210, M8FC/LM8C BOOSTER B1C2F3W1V1

CNDPOS	INCIDC	ELEVTR	AILRON
2.000	3.000	0.000	0.000
3.000	3.000	20.000	0.000

REFERENCE INFORMATION		
SREF	1.3550	80. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0167	FEET
SCALE	0.0150	SCALE

MACH 0.701

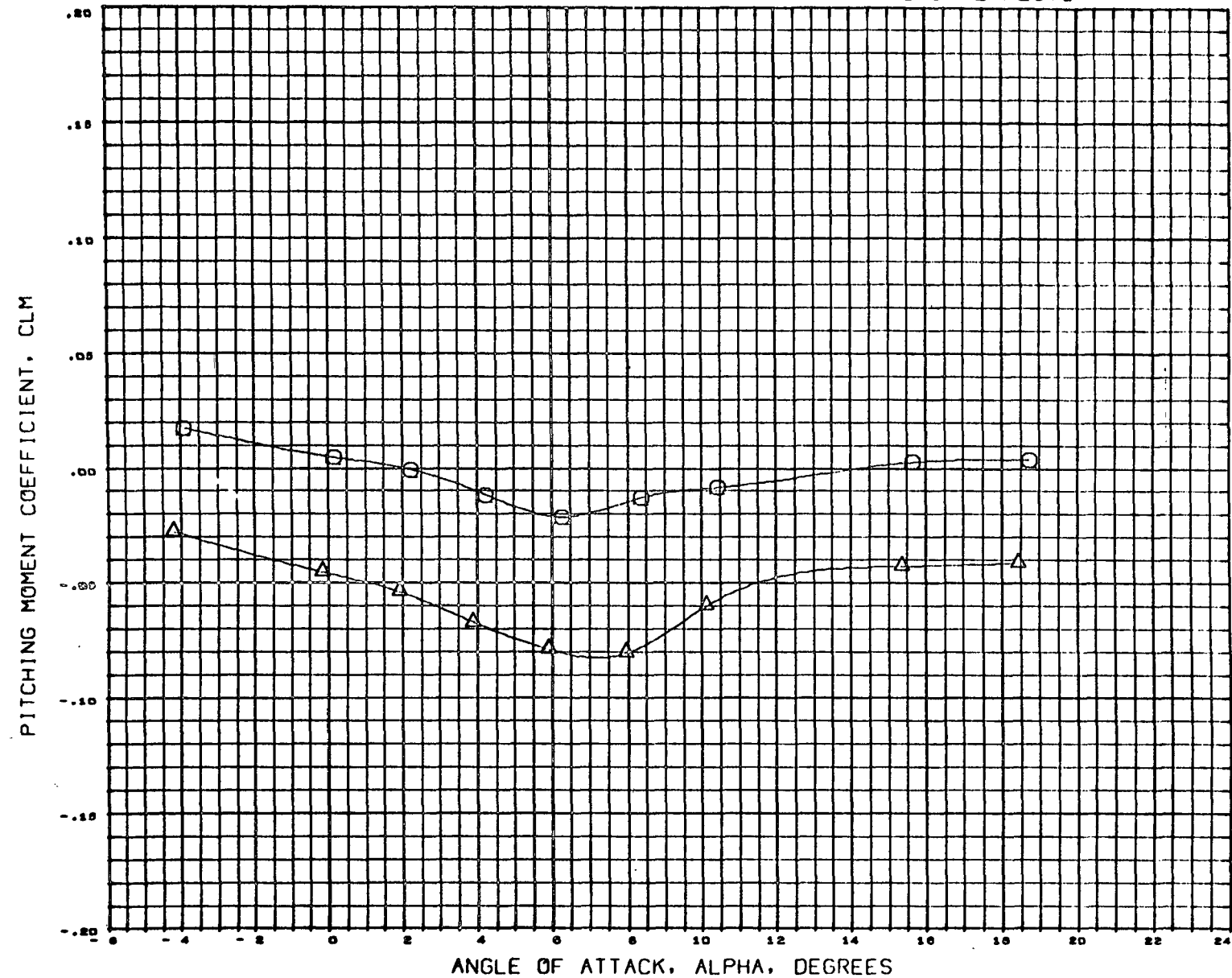
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION	
(RN3098)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3097)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	20.000	0.000	LREF	3.4530 FEET
						BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.799

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

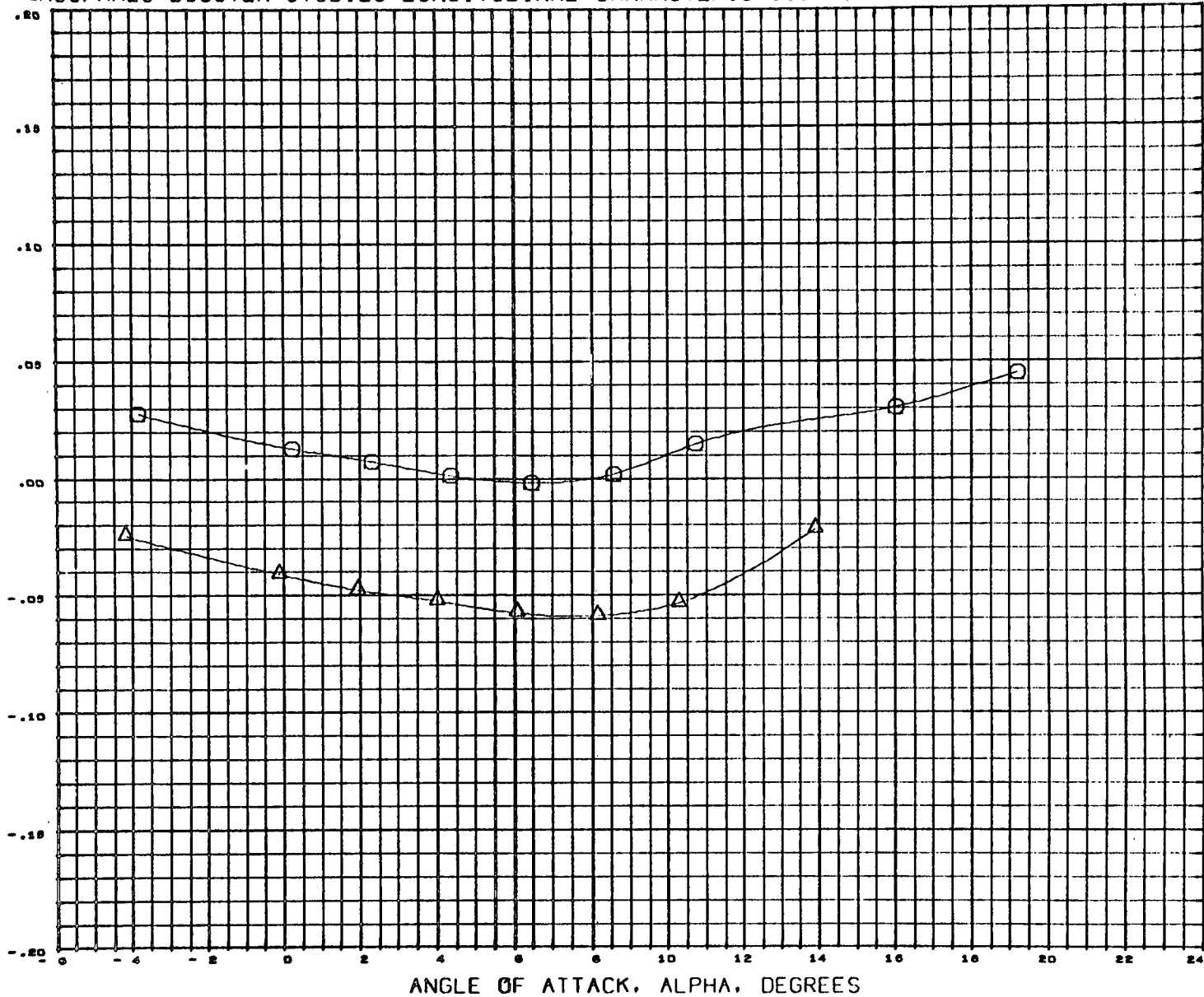


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INC1DC	ELEVTR	AILRON	REFERENCE INFORMATION	
(RN3053)	Q N8RDC-3210,M8FC/LM8C BOOSTER B1C2F2W1V1	2.000	3.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3057)	A N8RDC-3210,M8FC/LM8C BOOSTER B1C2F2W1V1	2.000	3.000	20.000	0.000	LREF	3.4530 FEET
						BREF	3.4530 FEET
						XMRP	2.5050 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.904

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

PITCHING MOMENT COEFFICIENT, CLM

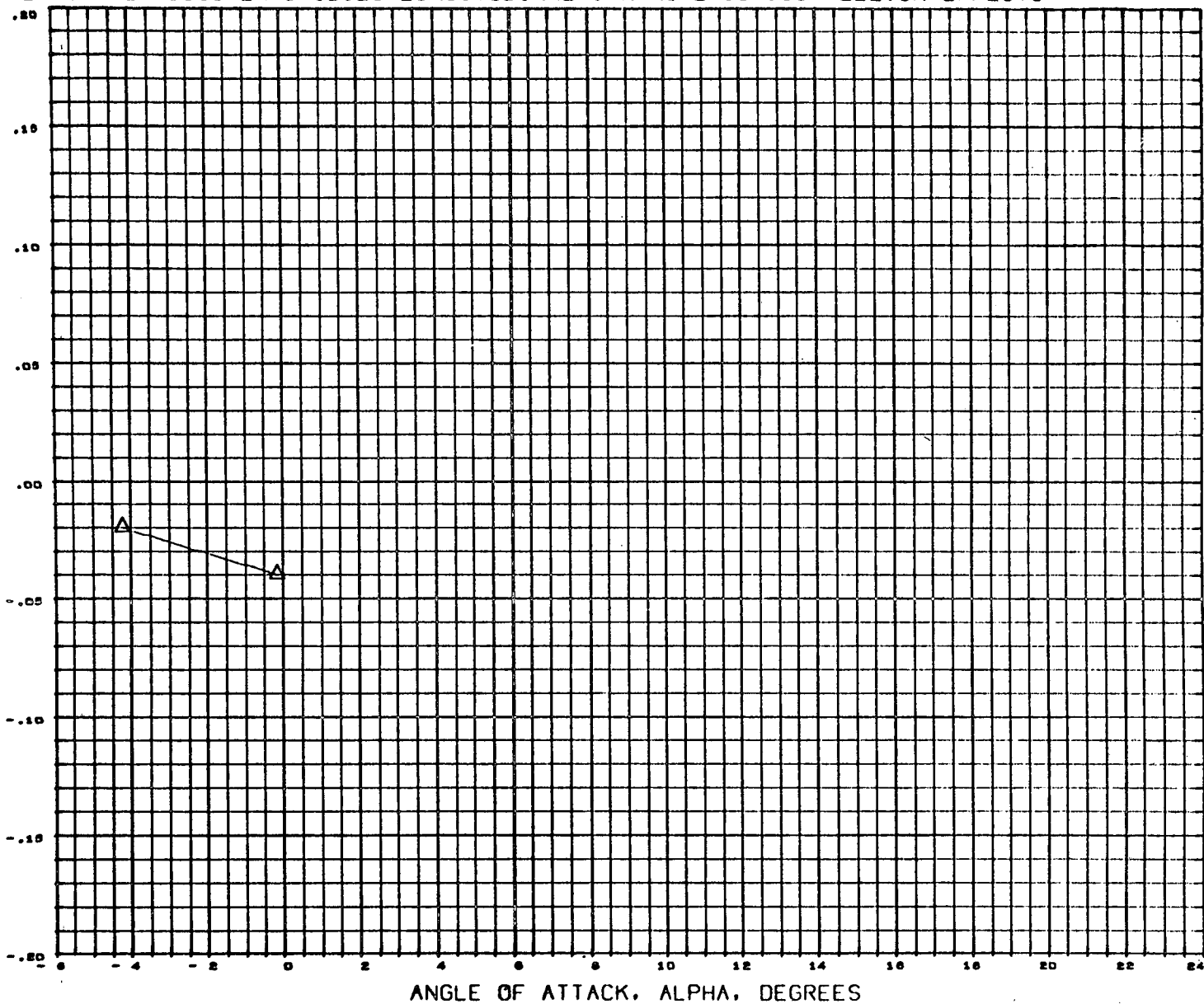


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION	
(RN3093)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3097)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	20.000	0.000	LREF	3.4530 FEET
						BREF	3.4530 FEET
						XMRF	2.5950 FEET
						YMRF	0.0000 FEET
						ZMRF	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 1.000

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

PITCHING MOMENT COEFFICIENT, CLM



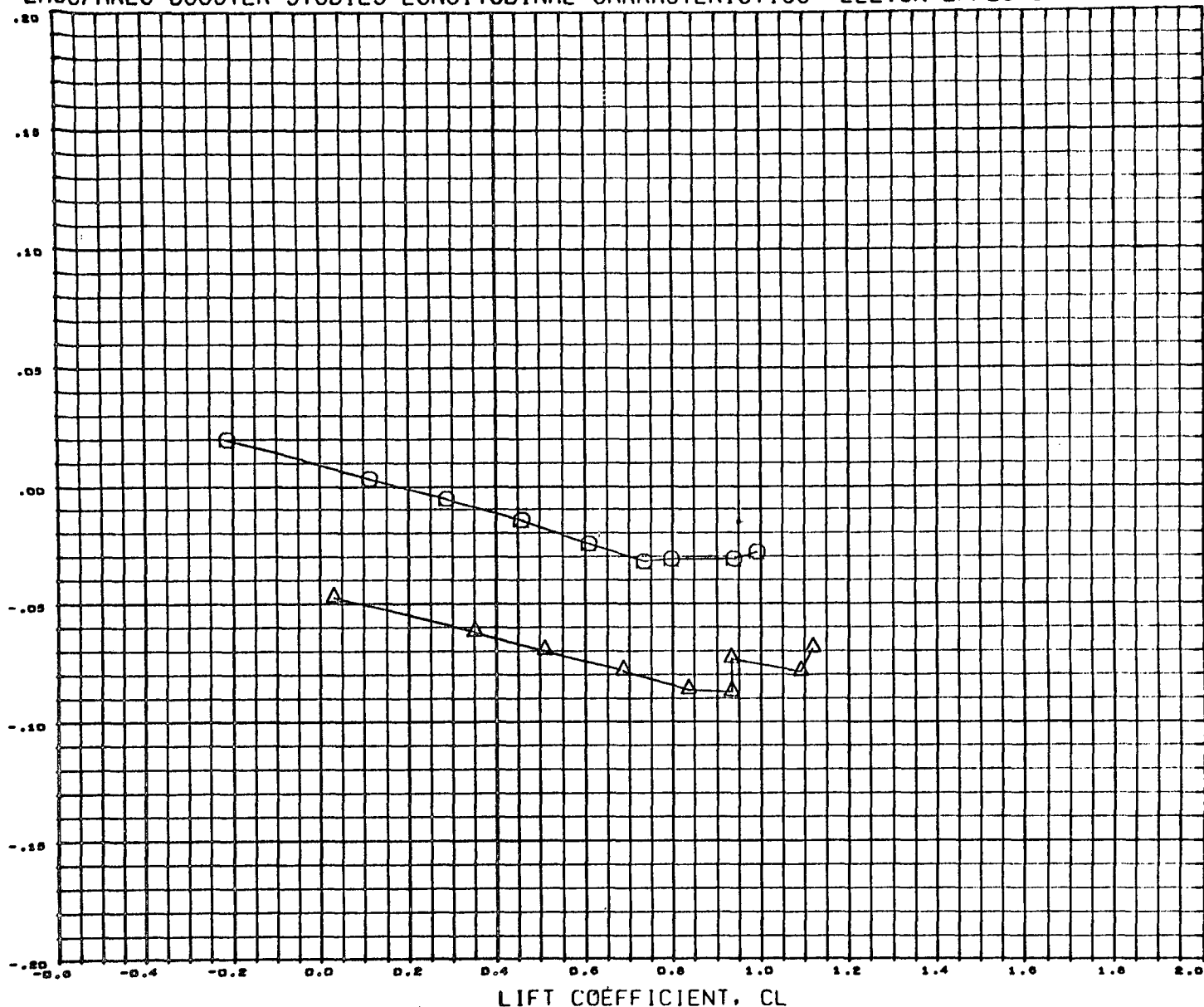
DATA SET SYMBOL CONFIGURATION DESCRIPTION
(RN3053) DATA NOT AVAILABLE FOR ALL CONDITIONS
(RN3057) NSRDC-3210, MBFC/LMSC BOOSTER B1C2F2W1V1

CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION	
2.000	3.000	0.000	0.000	SREF	1.3550 SQ.FT.
2.000	3.000	20.000	0.000	LREF	3.4530 FEET
				BREF	3.4530 FEET
				XMRP	2.9950 FEET
				YMRP	0.0000 FEET
				ZMRP	0.0187 FEET
				SCALE	0.0150 SCALE

MACH 1.125

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

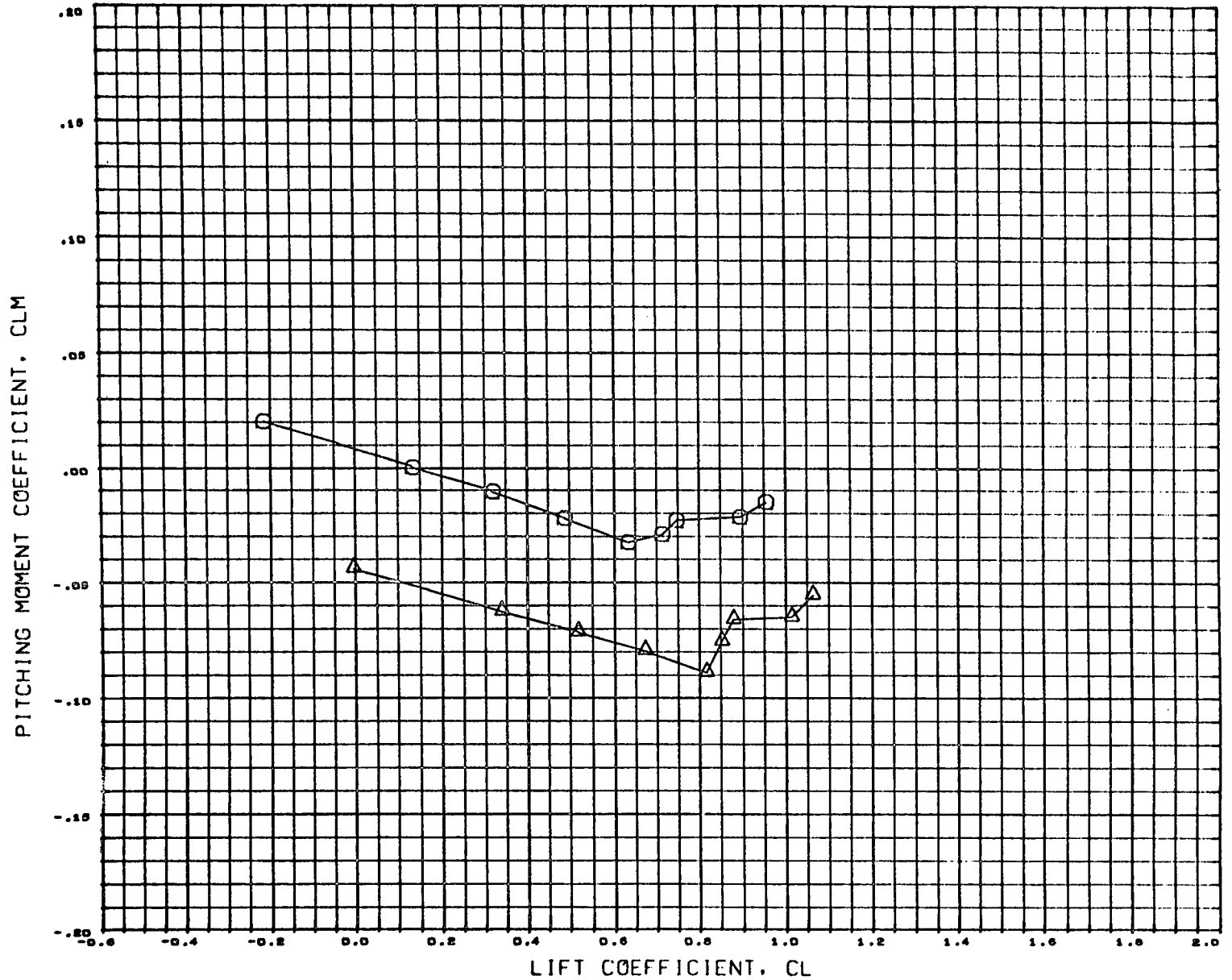
PITCHING MOMENT COEFFICIENT, CLM



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION	
(RN3053)	NSRDC-3210, H8FC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3057)	NSRDC-3210, H8FC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	20.000	0.000	LREF	3.4530 FEET
						BREF	3.4530 FEET
						XMHP	2.5950 FEET
						YMHP	0.0000 FEET
						ZMHP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.701

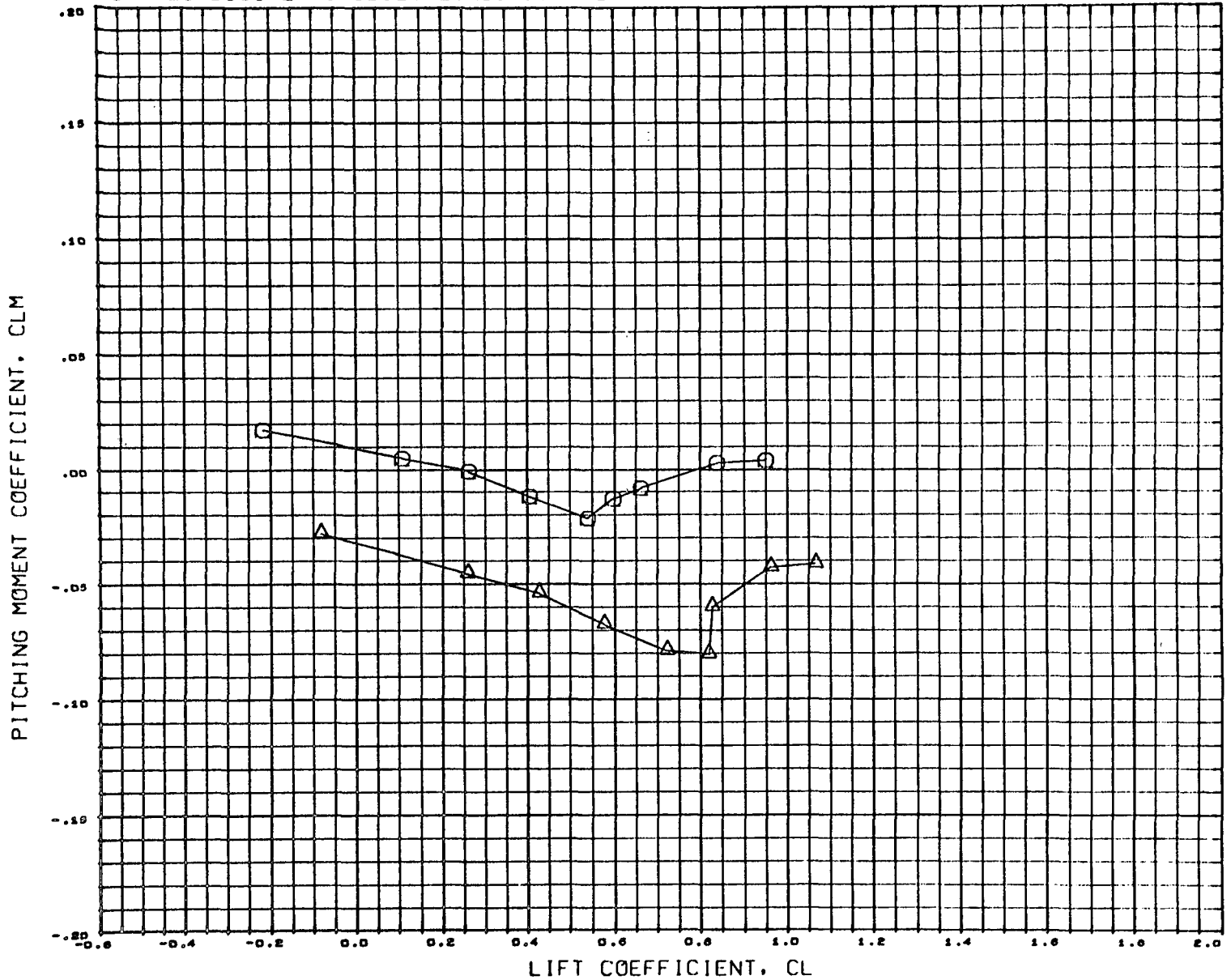
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION		
(RND055)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	0.000	0.000	SREF	1.3550	88. FT.
(RND057)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	20.000	0.000	LREF	3.4530	FEET
						SREF	3.4530	FEET
						XMRP	2.5950	FEET
						YMRP	0.0000	FEET
						ZMRP	0.0167	FEET
						SCALE	0.0150	SCALE

MACH 0.799

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

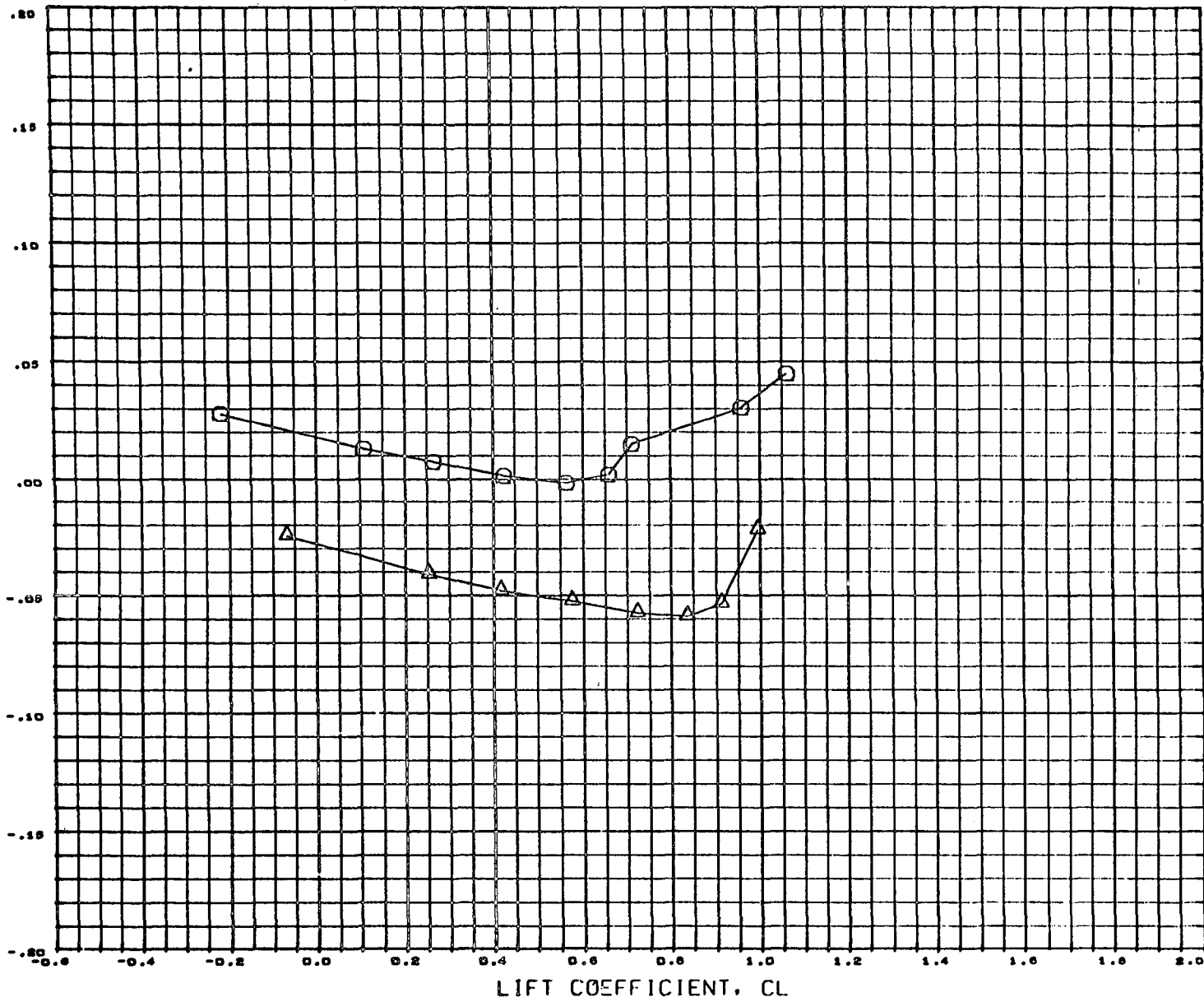


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION	
(RN3053)	N8RDC-3210, M8FC/LMSC BOOSTER 01C2F2W1V1	2.000	3.000	0.000	0.000	SREF	1.3550 SQ. FT.
(RN3057)	N8RDC-3210, M8FC/LMSC BOOSTER 01C2F2W1V1	2.000	3.000	20.000	0.000	LREF	3.4530 FEET
						OREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.904

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

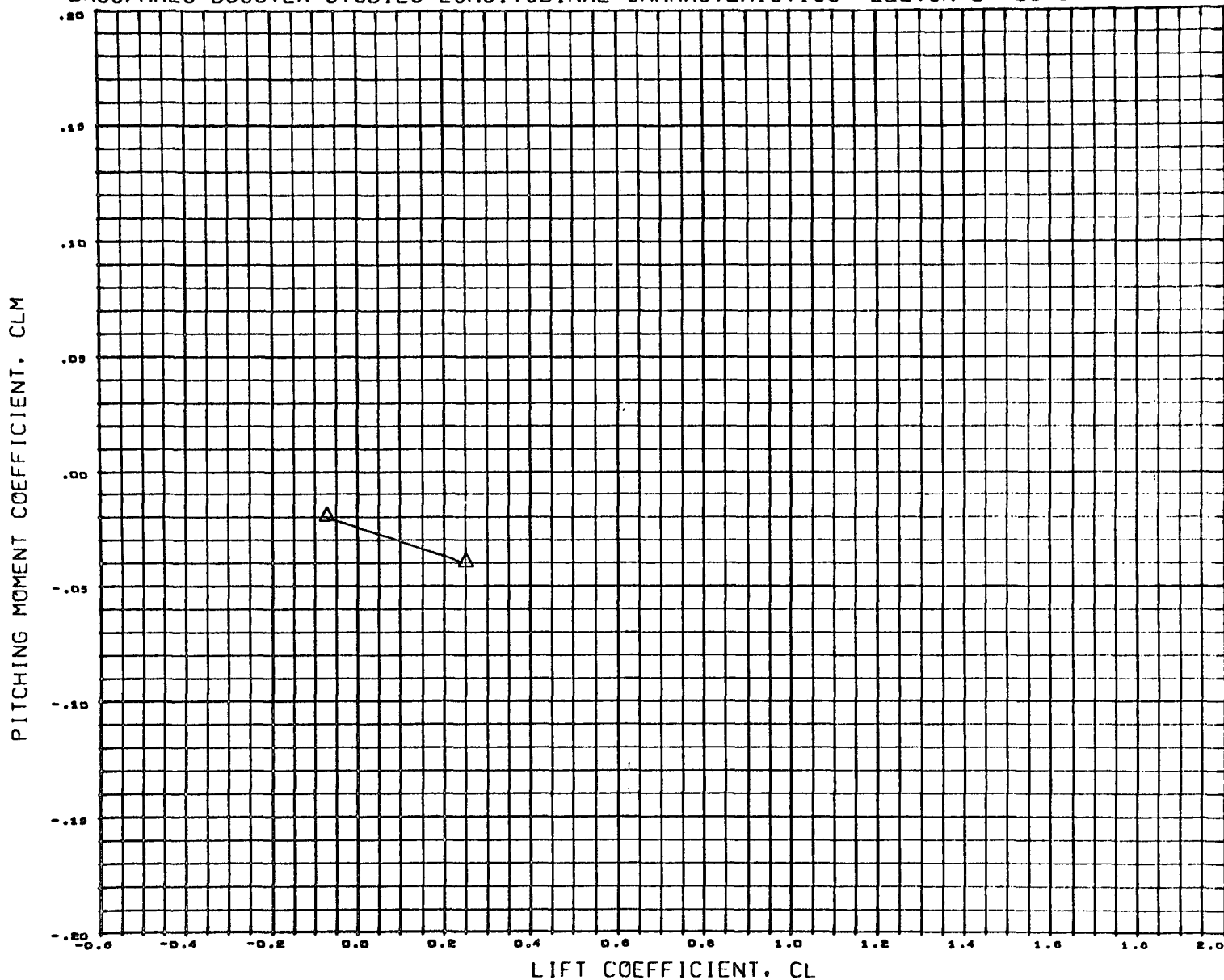
PITCHING MOMENT COEFFICIENT, CLM



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION	
(RNS055)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RNS057)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	2.000	3.000	20.000	0.000	LREF	3.4530 FEET
						BREF	3.4530 FEET
						XMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 1.000

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- ELEVON EFFECTS

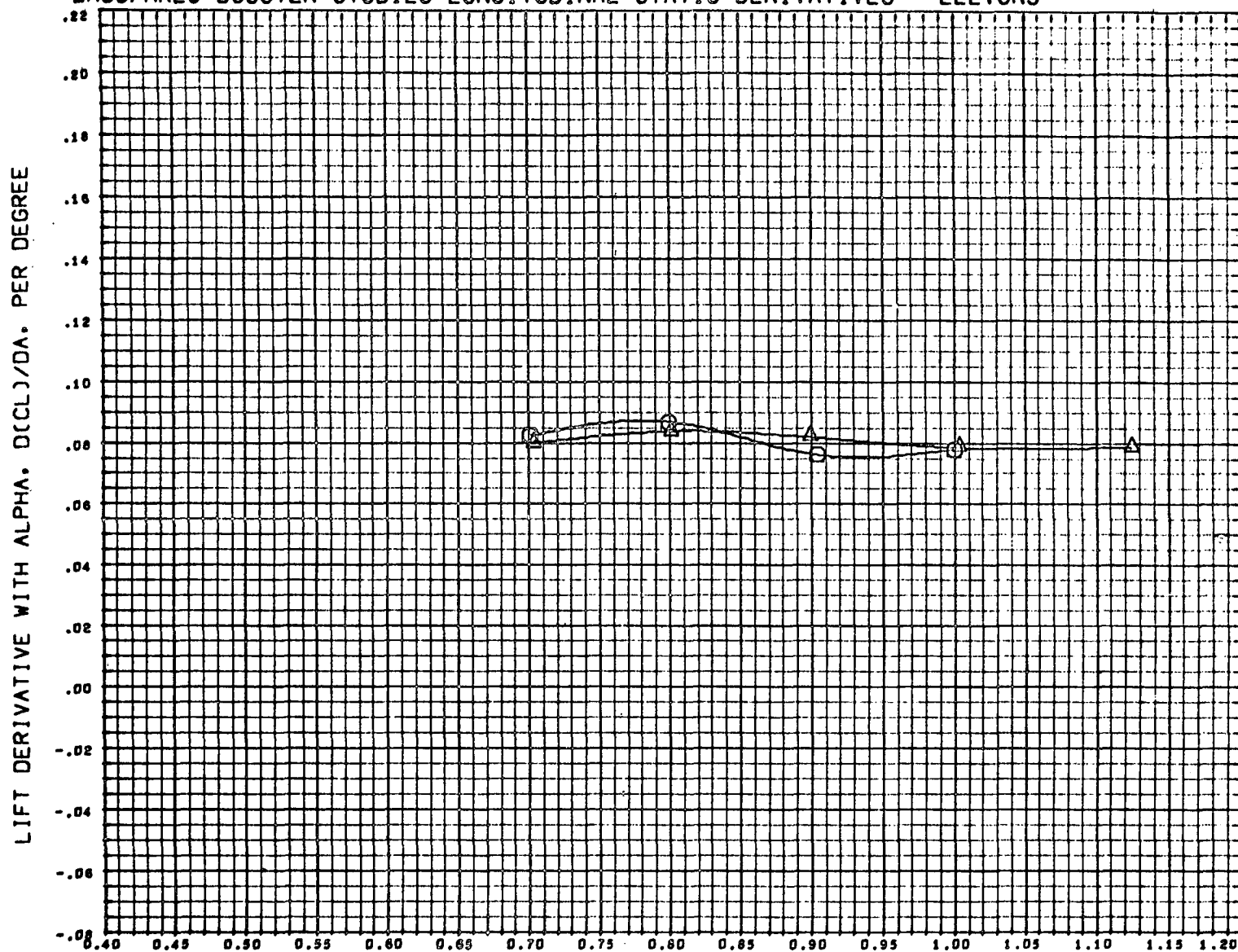



DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (RNS053) DATA NOT AVAILABLE FOR ALL CONDITIONS
 (RNS057) NBRDC-3210, HREC/LMSC BOOSTER B1C2F2W1V1

CNDPOS	INCIDC	ELEVTR	AILRON	REFERENCE INFORMATION
2.000	3.000	0.000	0.000	SREF 1.3550 SQ.FT.
2.000	3.000	20.000	0.000	LREF 3.4530 FEET
				BREF 3.4530 FEET
				XMRP 2.5950 FEET
				YMRP 0.0000 FEET
				ZMRP 0.0167 FEET
				SCALE 0.0150 SCALE

MACH 1.129

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL STATIC DERIVATIVES - ELEVONS



DATA SET SYMBOL
(R3053) 
(R3057)

CONFIGURATION DESCRIPTION
NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1
NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1

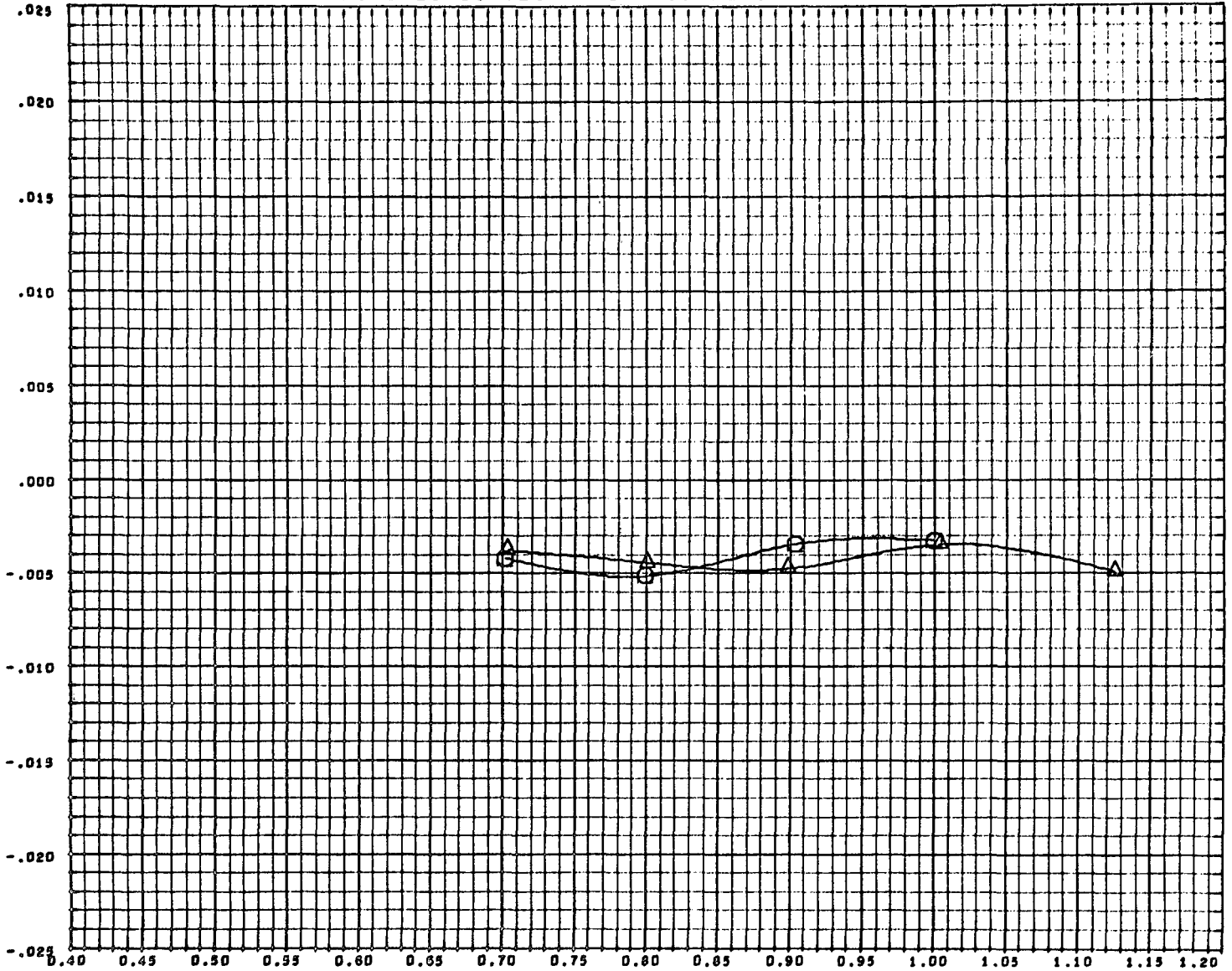
MACH NUMBER

CNDPOS	INCIDC	ELEVTR	AILRON
2.000	3.000	0.000	0.000
2.000	3.000	20.000	0.000

REFERENCE INFORMATION		
SREF	1.3550	50. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.9950	FEET
YMRP	0.0000	FEET
ZMRP	0.0187	FEET
SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL STATIC DERIVATIVES - ELEVONS

PITCHING MOMENT DERIVATIVE WITH ALPHA, $D(CLM)/DA$, PER DEGREE



MACH NUMBER

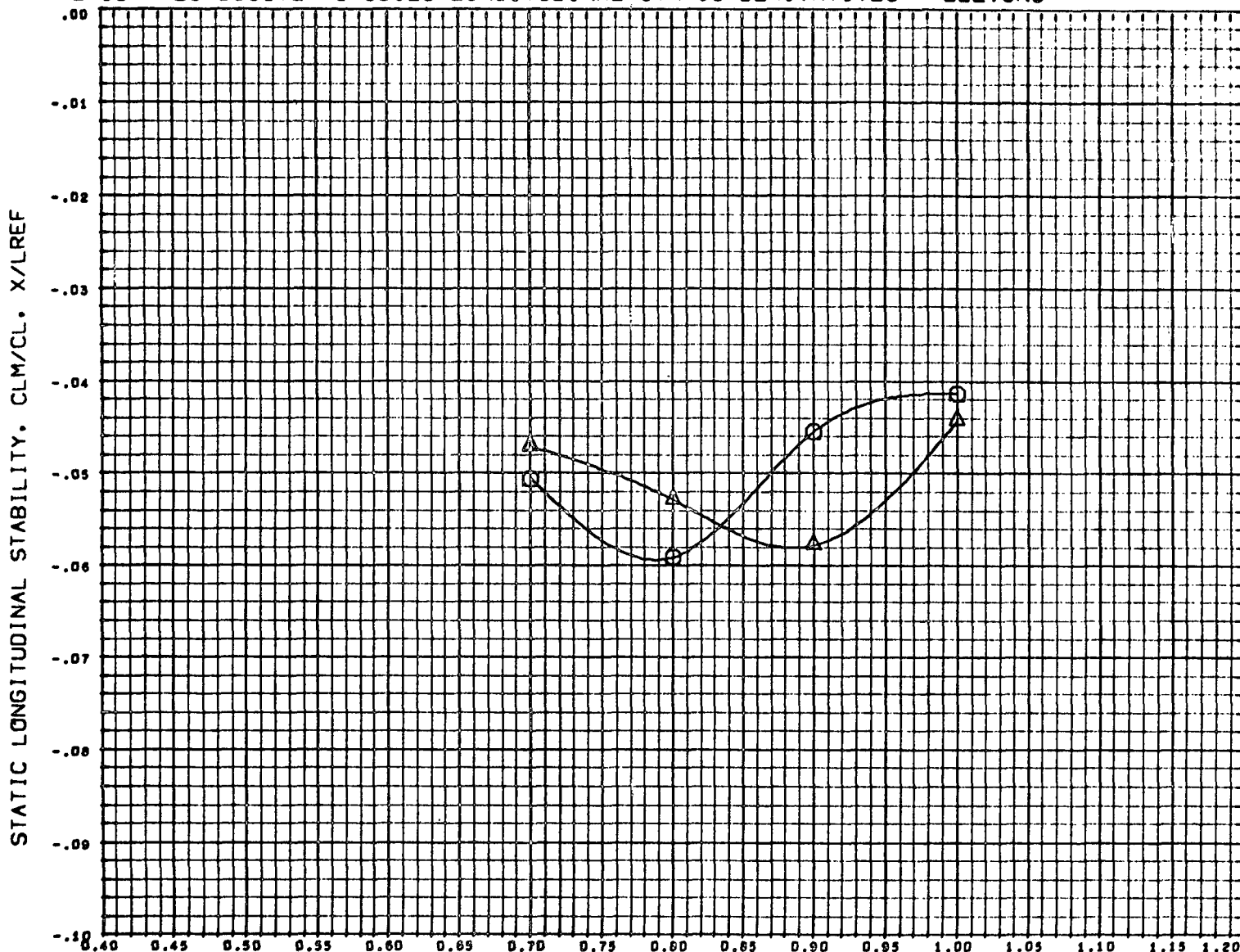
DATA SET SYMBOL
(RN3053)
(RN3057)



CONFIGURATION DESCRIPTION
NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1
NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1

CNDPOS	INCIDC	ELEVTR	AILRON
2.000	3.000	0.000	0.000
2.000	3.000	20.000	0.000

REFERENCE INFORMATION		
SREF	1.3550	50. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0187	FEET
SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL STATIC DERIVATIVES - ELEVONS



DATA SET SYMBOL
(TN3053) 
(TN3057) 

CONFIGURATION DESCRIPTION
NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1
NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1

MACH NUMBER

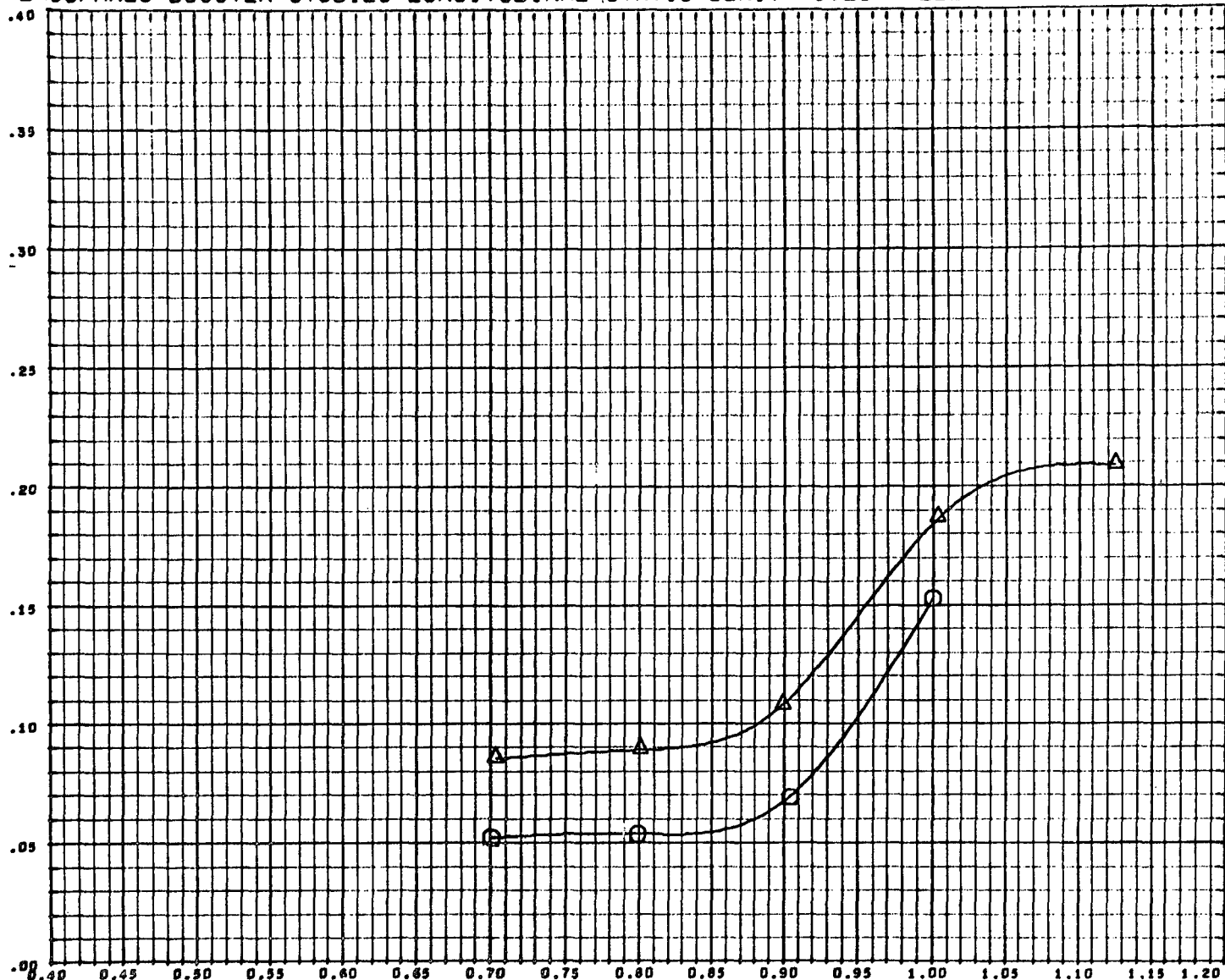
CNDPOS	INCIDC	ELEVTR	AILRON
2.000	3.000	0.000	0.000
2.000	3.000	20.000	0.000

REFERENCE INFORMATION	
SREF	1.3550 SQ. FT.
LREF	3.4530 FEET
BREF	3.4530 FEET
XMRP	2.5950 FEET
YMRP	0.0000 FEET
ZMRP	0.0167 FEET
SCALE	0.0150 SCALE



ALPHA 0.000

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL STATIC DERIVATIVES - ELEVONS

ZERO ANGLE OF ATTACK DRAG COEFFICIENT, $C_D(\alpha=0)$ ($CDALF0$)



MACH NUMBER

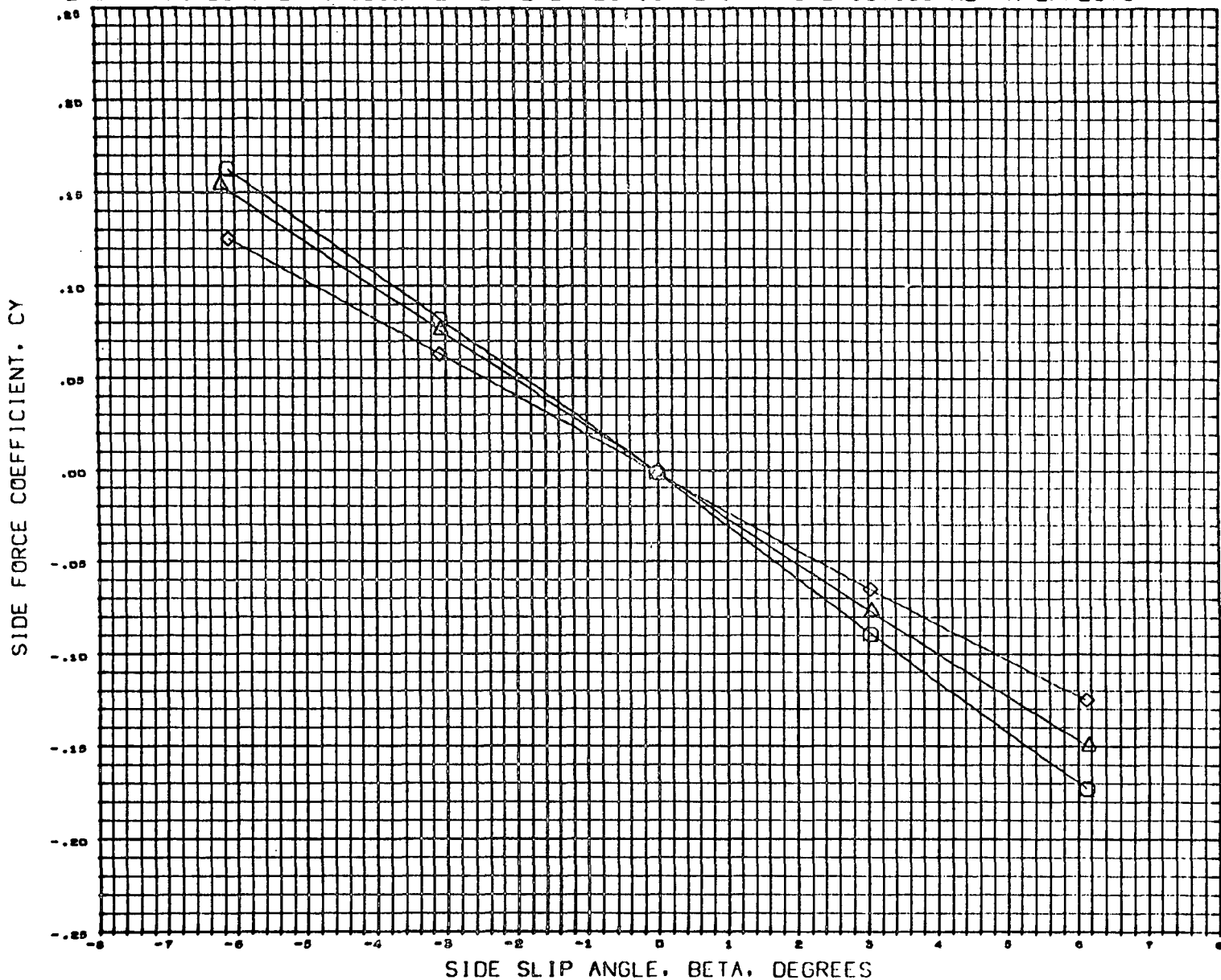
DATA SET SYMBOL
(BN3053) 
(BN3057) 

CONFIGURATION DESCRIPTION
N8RDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1
N8RDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1

CNDPOS	INCIDC	ELEVTR	AILRON
2.000	3.000	0.000	0.000
2.000	3.000	20.000	0.000

REFERENCE INFORMATION	
SREF	1.3550 SQ.FT.
LREF	3.4530 FEET
BREF	3.4530 FEET
XNRP	2.5950 FEET
YNRP	0.0000 FEET
ZNRP	0.0187 FEET
SCALE	0.0150 SCALE

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS



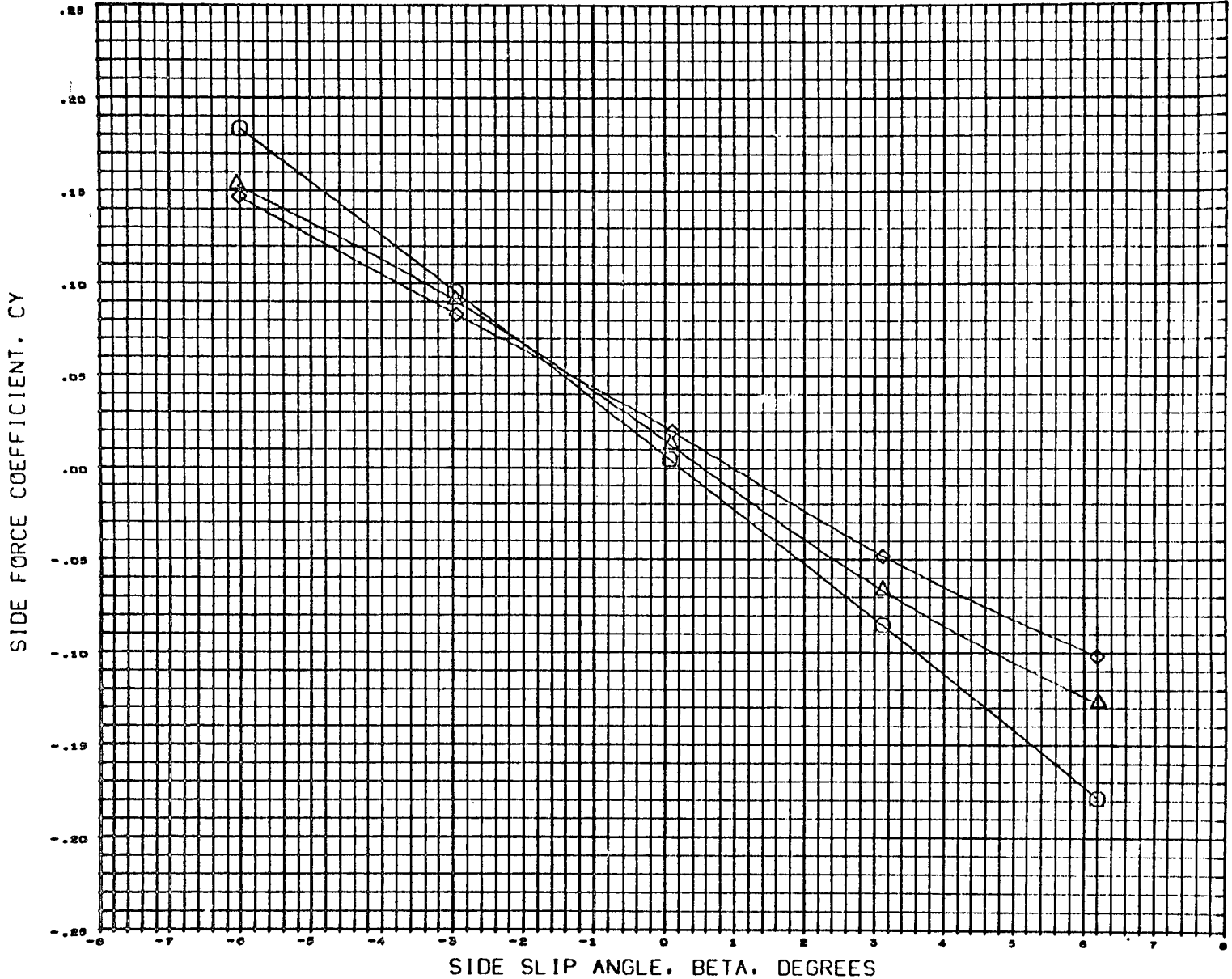
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(JN3054)	NSRDC-3210, M8FC/LMSC BOOSTER B1C2F2W1V1
(JN3055)	NSRDC-3210, M8FC/LMSC BOOSTER B1C2F2W1V1
(JN3056)	NSRDC-3210, M8FC/LMSC BOOSTER B1C2F2W1V1

ALPHA	CNDPOS	INCIDC
0.000	2.000	3.000
6.260	2.000	3.000
15.400	2.000	3.000

REFERENCE INFORMATION		
SREF	1.3550	60. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0167	FEET
SCALE	0.0190	SCALE

MACH 0.900

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS



DATA SET SYMBOL
(JN3054) \circ
(JN3055) \triangle
(JN3056) \diamond

CONFIGURATION DESCRIPTION
NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1
NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1
NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1

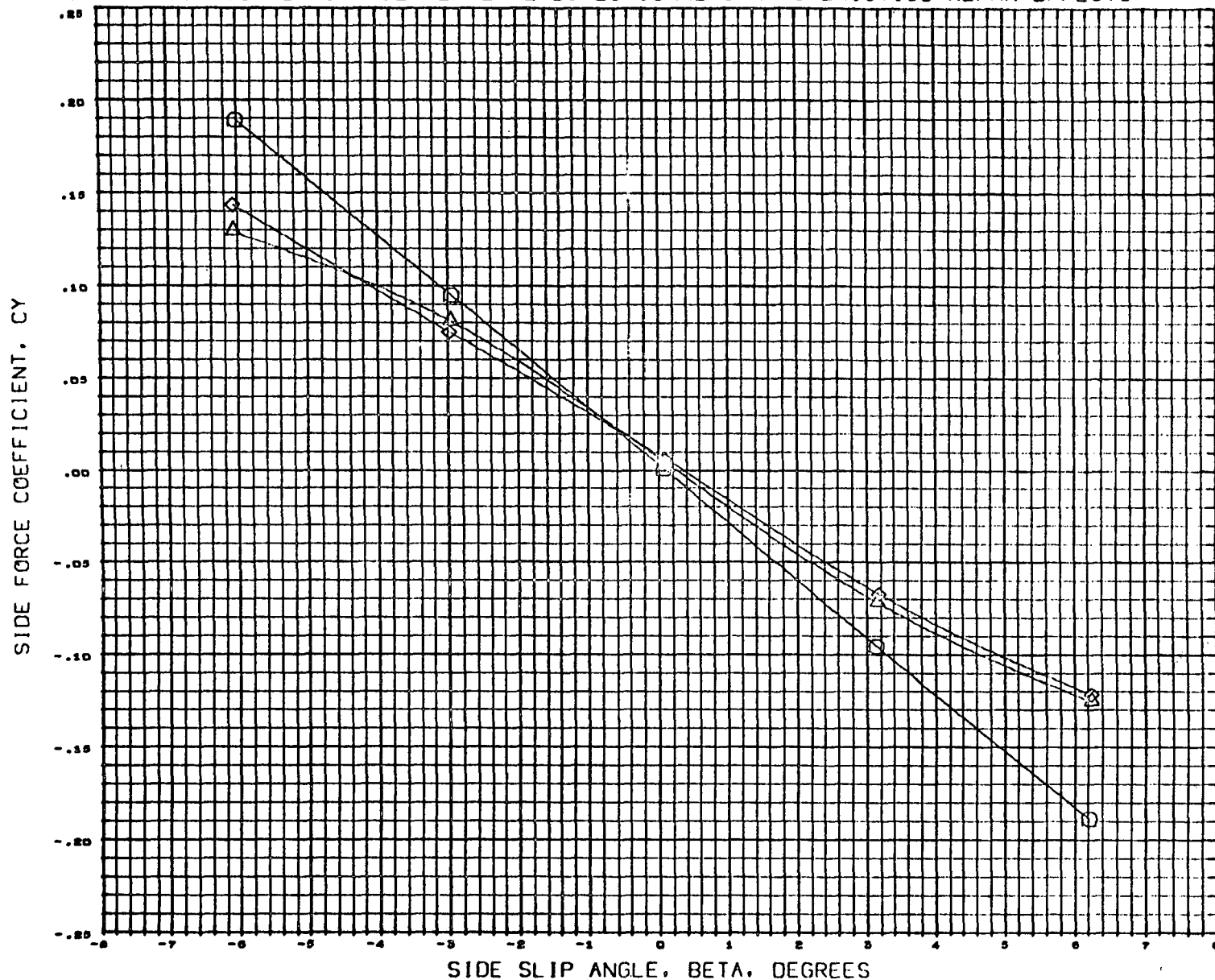
ALPHA	CNDPOS	INCIDC
0.000	2.000	3.000
6.260	2.000	3.000
15.400	2.000	3.000

REFERENCE INFORMATION

SREF	1.3550	SQ. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRF	2.5950	FEET
YMRF	0.0000	FEET
ZMRF	0.0167	FEET
SCALE	0.0150	SCALE

MACH 0.699

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS

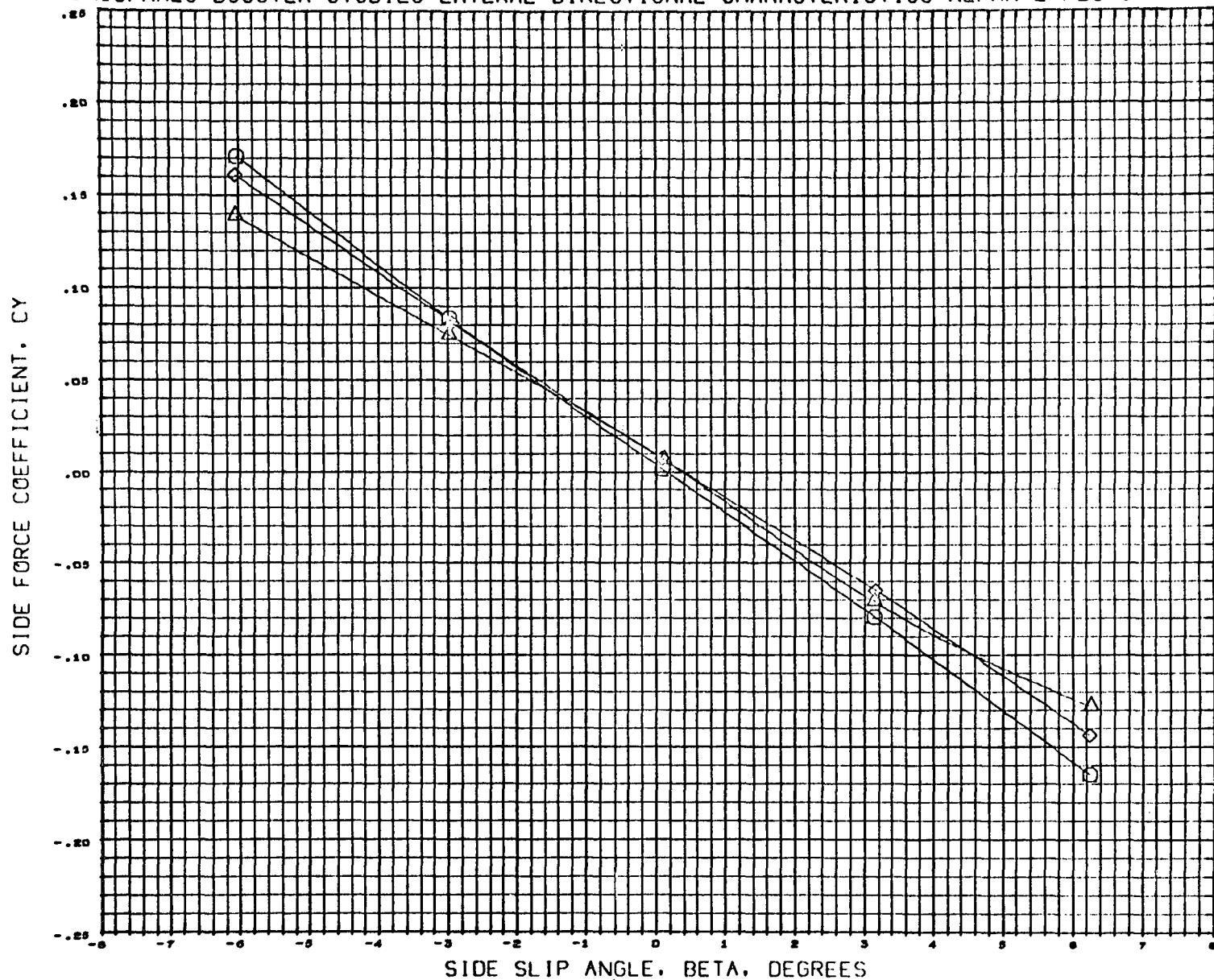


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	CNDPOS	INCIDC
(JN3054)	N8RDC-3210,M8FC/LMSC BOOSTER B1C2F2W1V1	0.000	2.000	3.000
(JN3055)	N8RDC-3210,M8FC/LMSC BOOSTER B1C2F2W1V1	6.260	2.000	3.000
(JN3056)	N8RDC-3210,M8FC/LMSC BOOSTER B1C2F2W1V1	15.400	2.000	3.000

REFERENCE INFORMATION		
SREF	1.3550	89. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.3950	FEET
YMRP	0.0000	FEET
ZMRP	0.0167	FEET
SCALE	0.0150	SCALE

MACH 0.797

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS

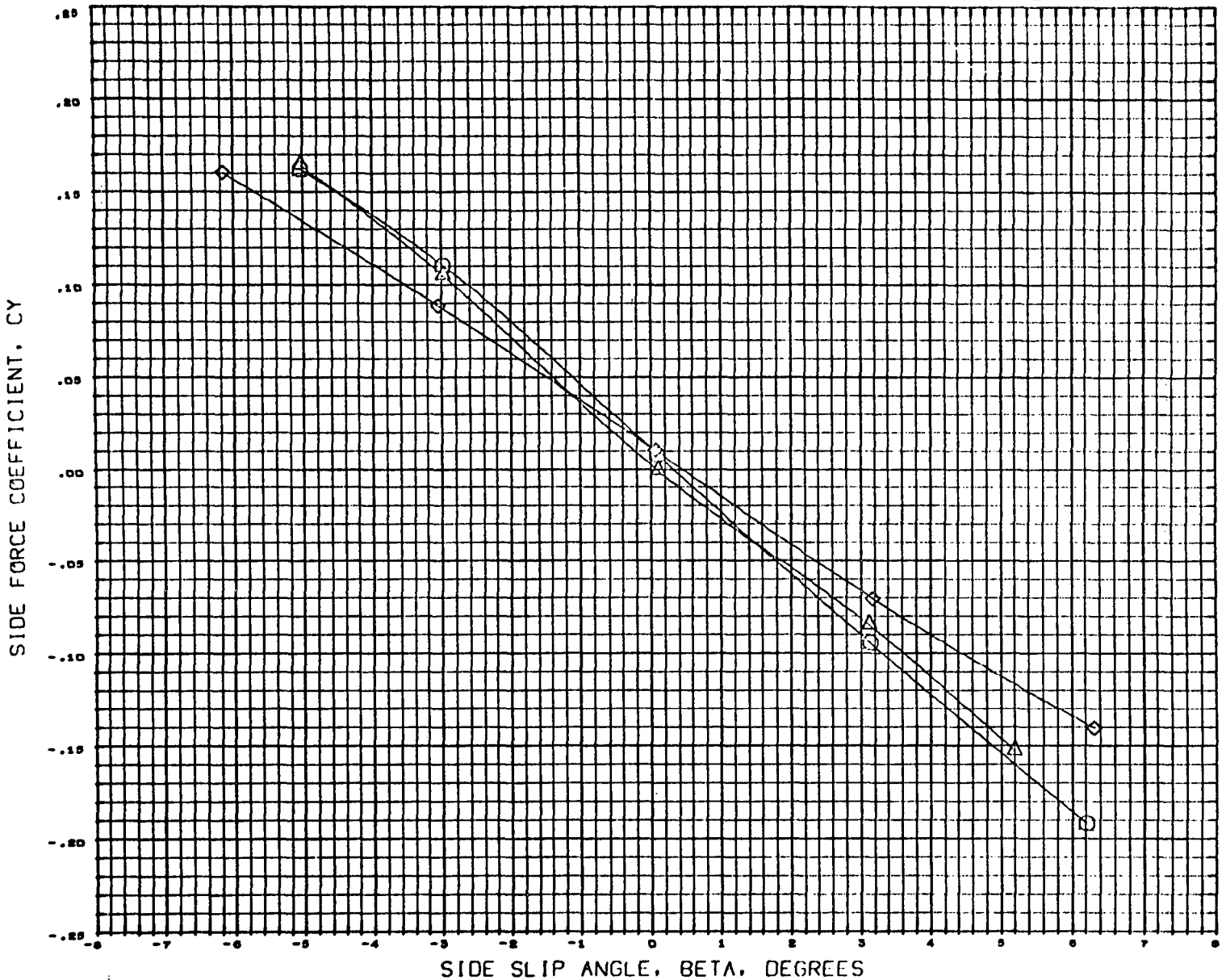


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	CNDPOS	INCIDC
(JN3054)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	2.000	3.000
(JN3055)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.260	2.000	3.000
(JN3056)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.400	2.000	3.000

MACH 0.898

REFERENCE INFORMATION		
SREF	1.3550	SQ. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0167	FEET
SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS



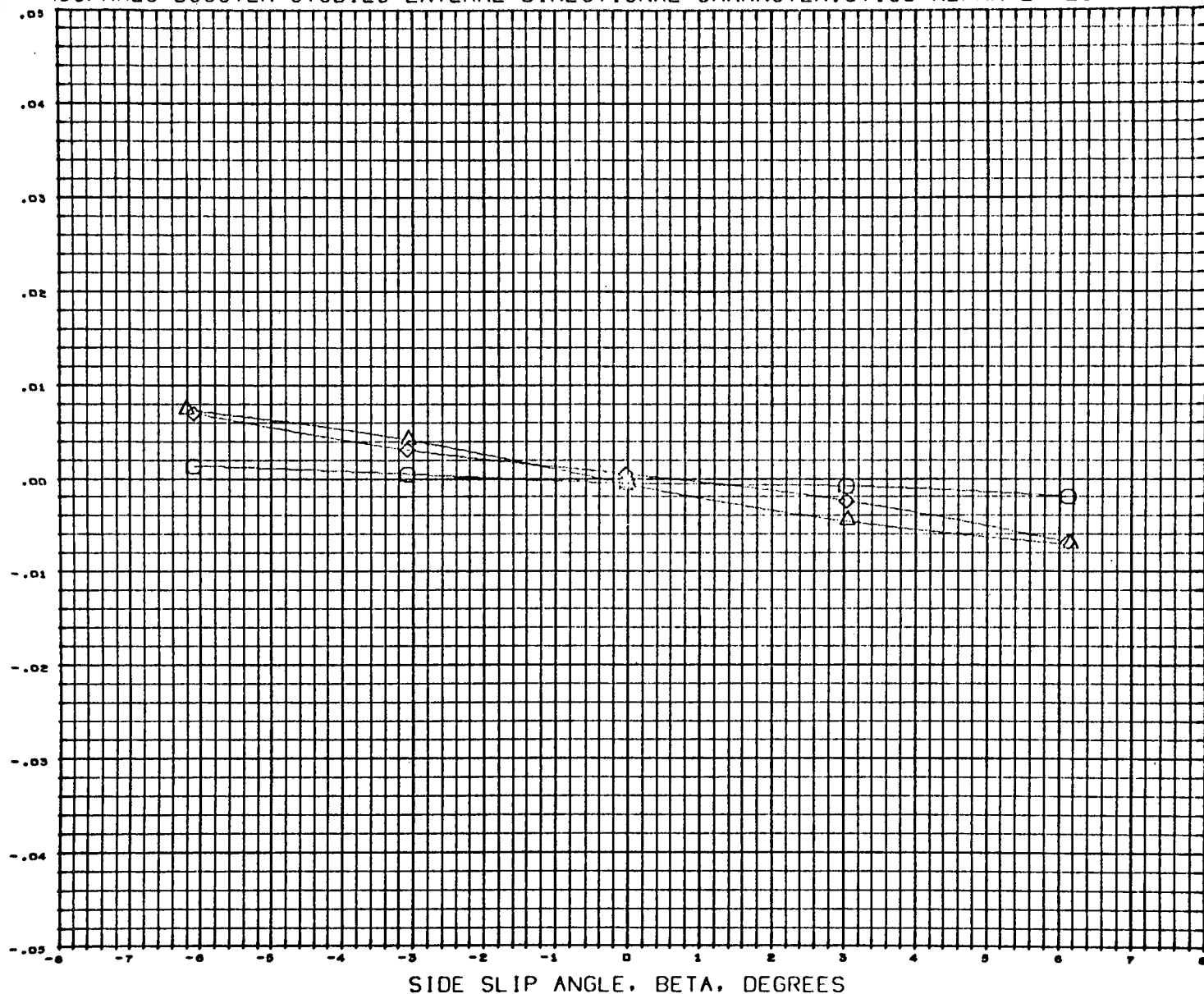
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	CNDPOS	INCIDC
(JN3034)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	2.000	3.000
(JN3035)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	6.260	2.000	3.000
(JN3036)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	15.400	2.000	3.000

MACH 1.000

REFERENCE INFORMATION		
SREF	1.3550	SG.FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0167	FEET
SCALE	0.0150	SCALE

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS

YAWING MOMENT COEFFICIENT, CYN (BODY AXIS)



DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(JN3054) ○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1
(JN3055) △	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1
(JN3056) ◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1

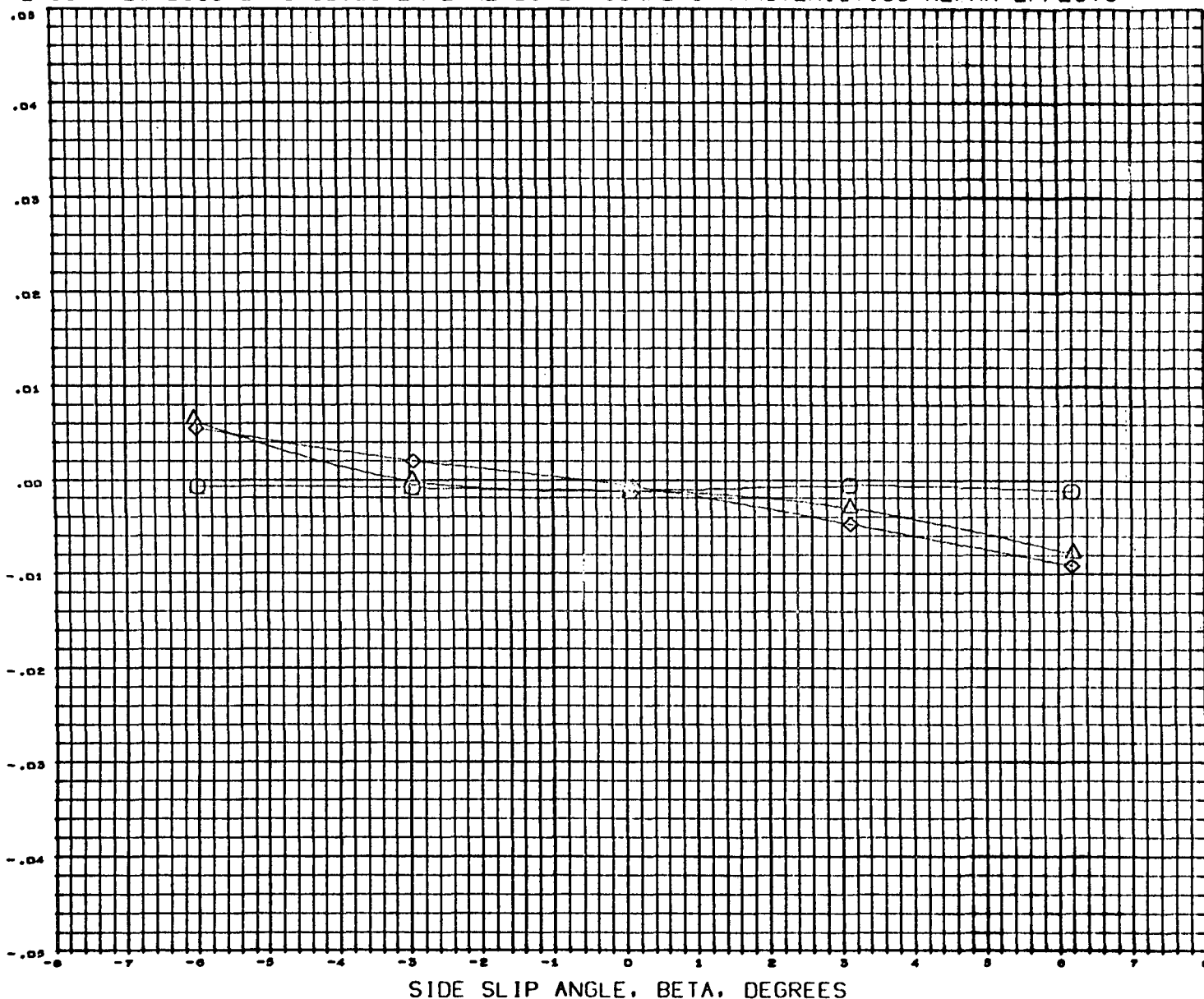
ALPHA	CNDPOS	INCIDC
0.000	2.000	3.000
6.260	2.000	3.000
15.400	2.000	3.000

REFERENCE INFORMATION		
SREF	1.3550	89. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.9950	FEET
YMRP	0.0000	FEET
ZMRP	0.0167	FEET
SCALE	0.0150	SCALE

MACH 0.500

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS

YAWING MOMENT COEFFICIENT, CYN (BODY AXIS)



DATA SET SYMBOL
(JN3054)
(JN3055)
(JN3056)

CONFIGURATION DESCRIPTION
NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1
NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1
NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1

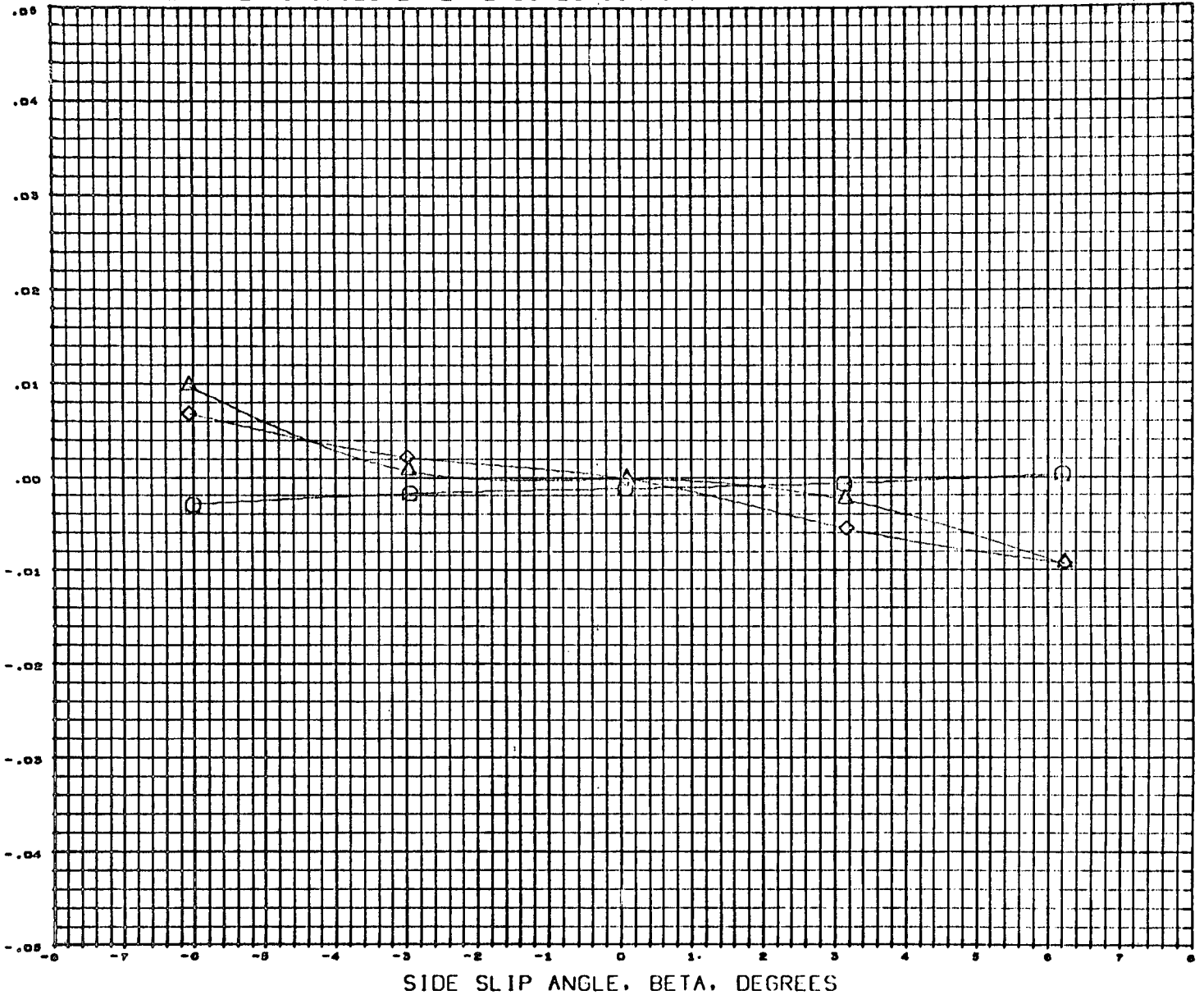
ALPHA	CNDPOS	INCIDC
0.000	2.000	3.000
6.260	2.000	3.000
15.400	2.000	3.000

REFERENCE INFORMATION		
SREF	1.3550	80.FT.
LREF	3.4930	FEET
OREF	3.4930	FEET
XMRP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0167	FEET
SCALE	0.0150	SCALE

MACH 0.699

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS

YAWING MOMENT COEFFICIENT, CYN (BODY AXIS)



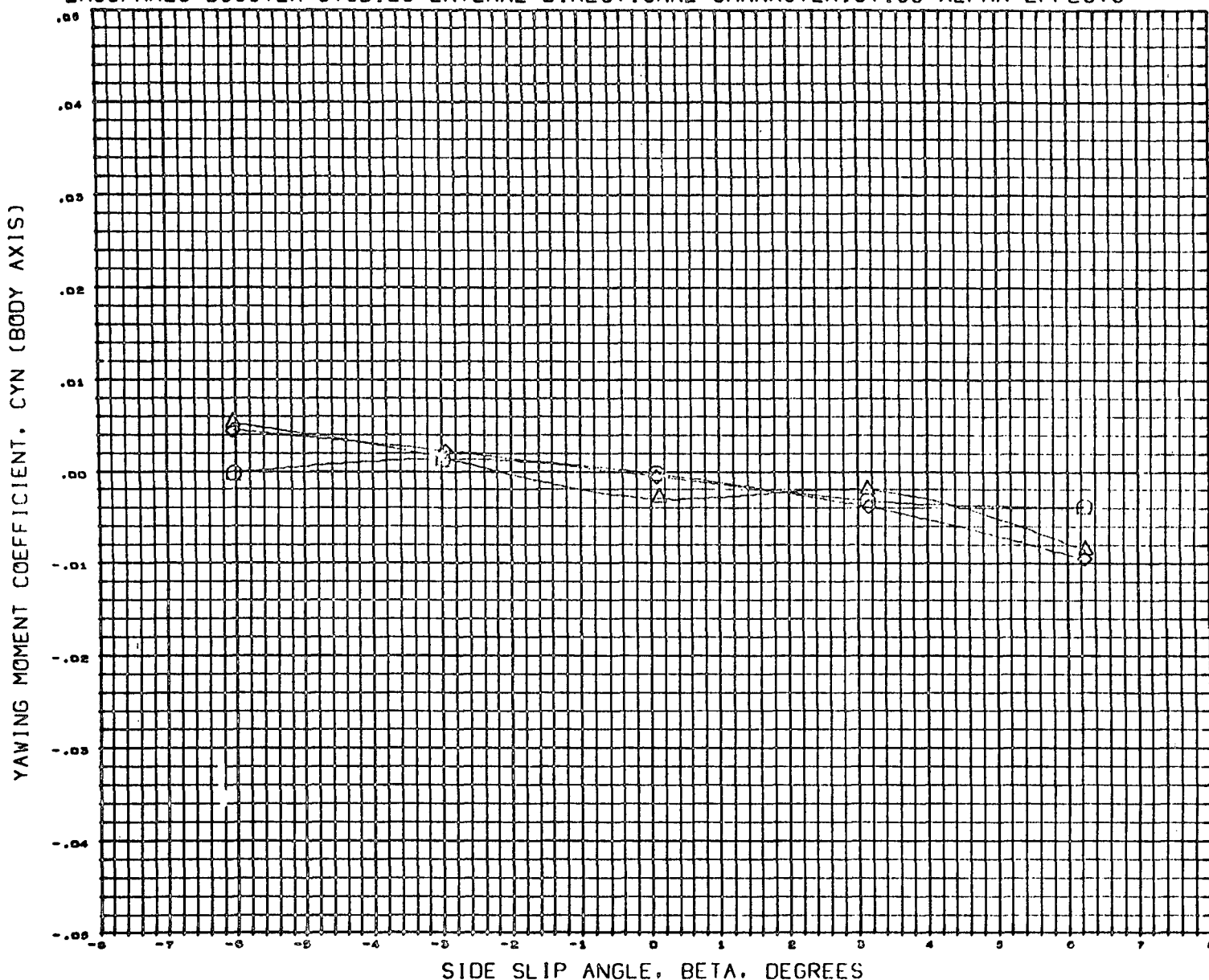
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(JN3054) ○	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1
(JN3055) △	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1
(JN3056) ◇	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1

ALPHA	CNDPOS	INCIDC
0.000	2.000	3.000
6.260	2.000	3.000
15.400	2.000	3.000

REFERENCE INFORMATION		
SREF	1.3550	SQ. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0187	FEET
SCALE	0.0150	SCALE

MACH 0.797

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS



DATA SET SYMBOL

(JN3054)
(JN3055)
(JN3056)

○
△
◇

CONFIGURATION DESCRIPTION

N8RDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1
N8RDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1
N8RDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1

ALPHA

CNDPOS

INCIDC

0.000 2.000 3.000
0.200 2.000 3.000
15.400 2.000 3.000

REFERENCE INFORMATION

SREF 1.3550 SQ.FT.
LREF 3.4530 FEET
BREF 3.4530 FEET
XMRP 2.5990 FEET
YMRP 0.0000 FEET
ZMRP 0.0167 FEET
SCALE 0.0150 SCALE

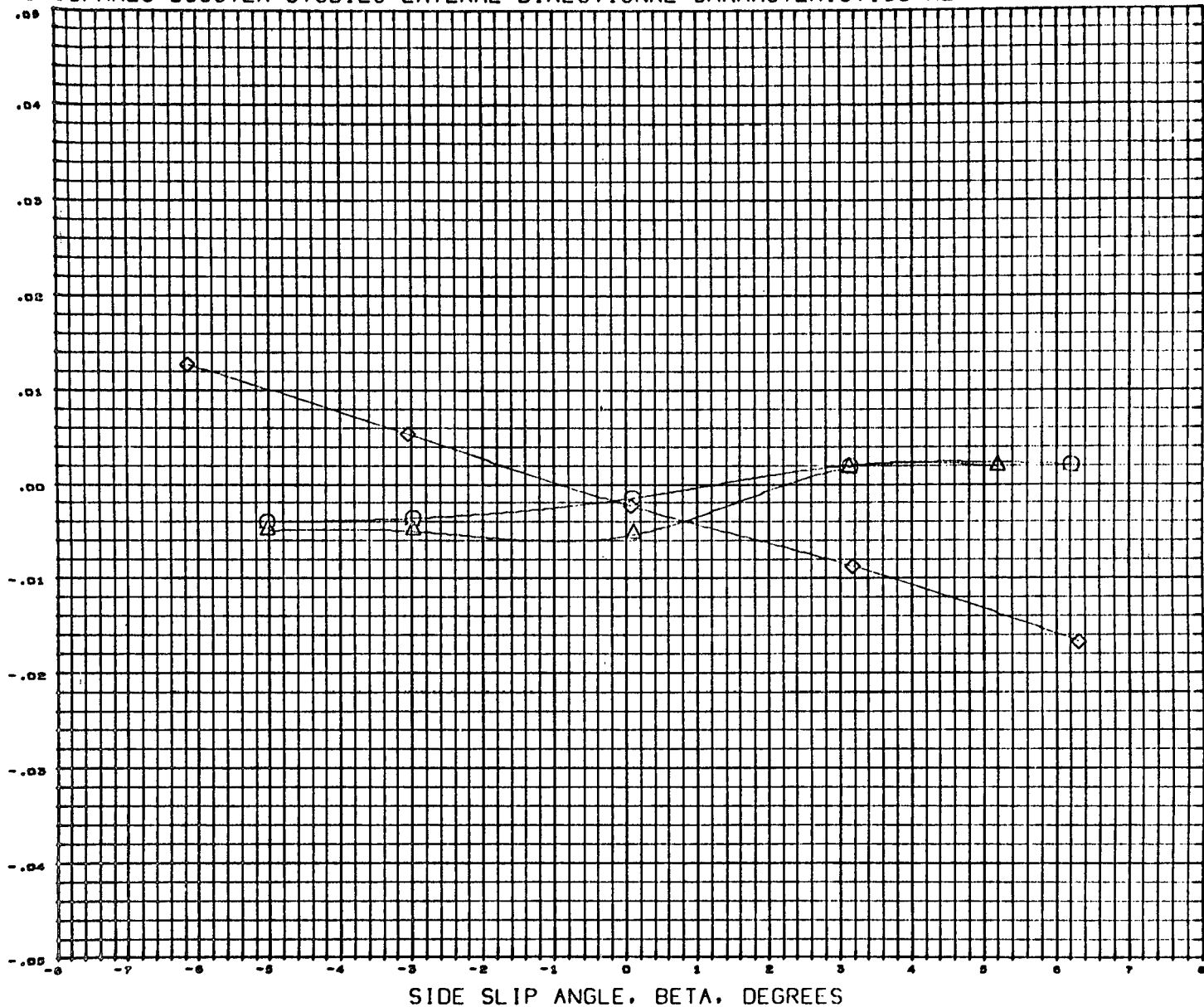
MACH

0.090

9

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS

YAWING MOMENT COEFFICIENT, CYN (BODY AXIS)



DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(JN3054)	N8RDC-3210, M8FC/LM8C BOOSTER B1C2F2W1V1
(JN3055)	N8RDC-3210, M8FC/LM8C BOOSTER B1C2F2W1V1
(JN3056)	N8RDC-3210, M8FC/LM8C BOOSTER B1C2F2W1V1

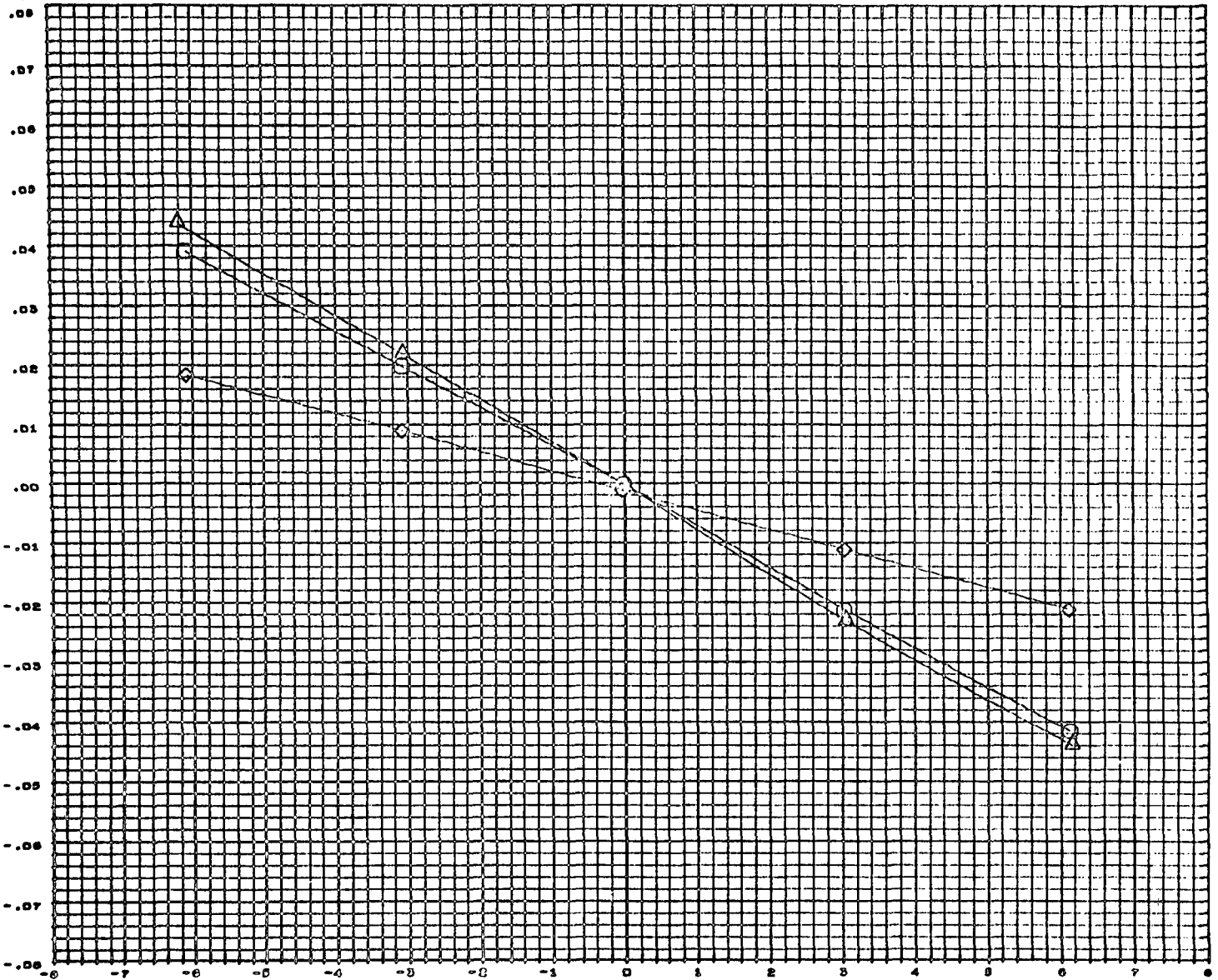
ALPHA	CNDPOS	INCIDC
0.000	2.000	3.000
6.260	2.000	3.000
15.400	2.000	3.000

REFERENCE INFORMATION		
SREF	1.3550	80. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.3950	FEET
YMRP	0.0000	FEET
ZMRP	0.0167	FEET
SCALE	0.0150	SCALE

MACH 2.000

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)



SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL



CONFIGURATION DESCRIPTION

ALPHA

CNDPOS

INCIDC

REFERENCE INFORMATION

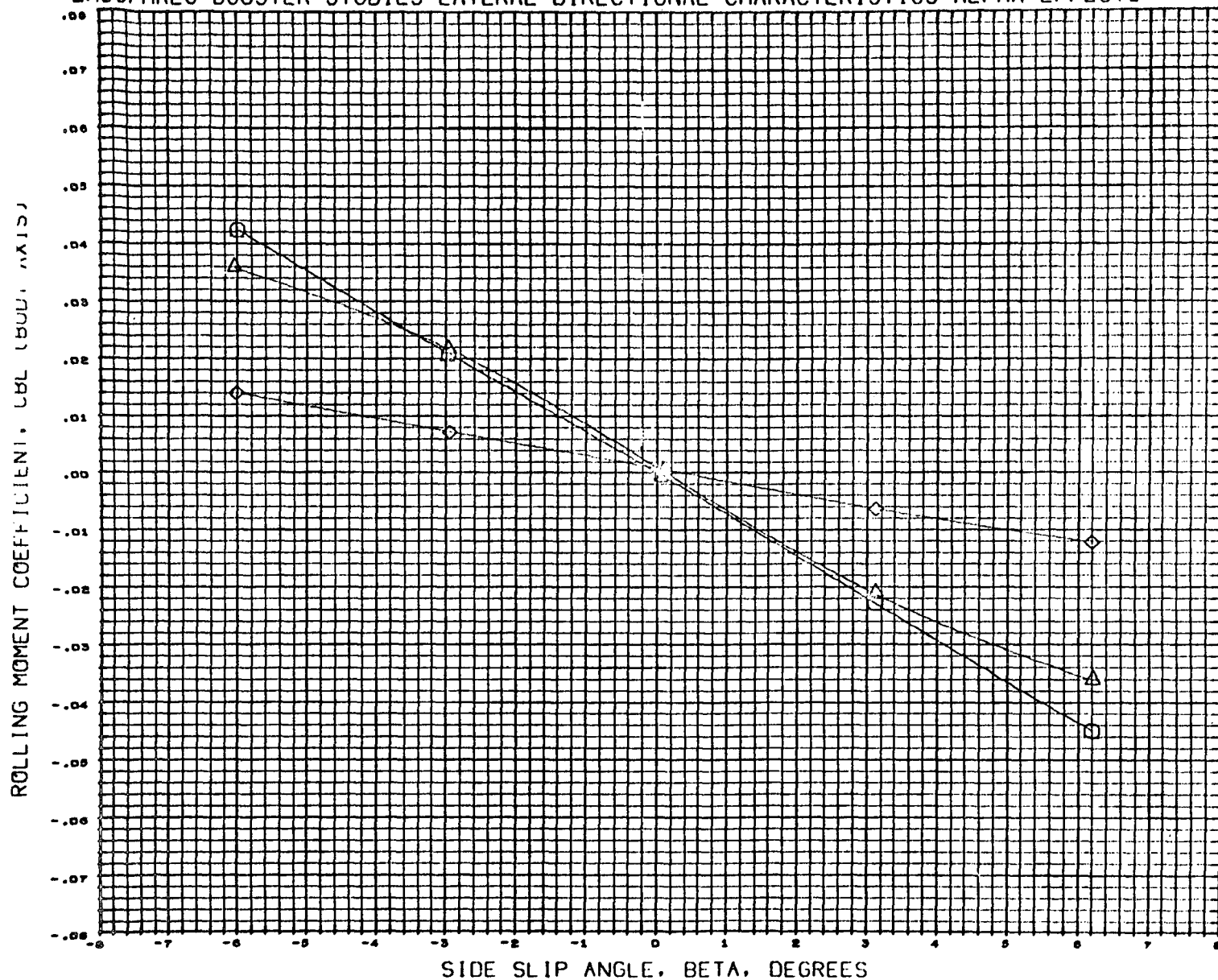
(JN3054)  N8RDC-3210,M8FC/LM8C BOOSTER 01C2F2W1V1
(JN3055)  N8RDC-3210,M8FC/LM8C BOOSTER 01C2F2W1V1
(JN3056)  N8RDC-3210,M8FC/LM8C BOOSTER 01C2F2W1V1

0.000 2.000 3.000
0.260 2.000 3.000
15.400 2.000 3.000

SREF 1.3550 00.FT.
LREF 3.4530 FEET
BREF 3.4530 FEET
XMRP 2.9050 FEET
YMRP 0.0000 FEET
ZMRP 0.0167 FEET
SCALE 0.0150 SCALE

MACH 0.900

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS



DATA SET SYMBOL
(JNS094)
(JNS099)
(JNS096)

CONFIGURATION DESCRIPTION
N8RDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1
N8RDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1
N8RDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1

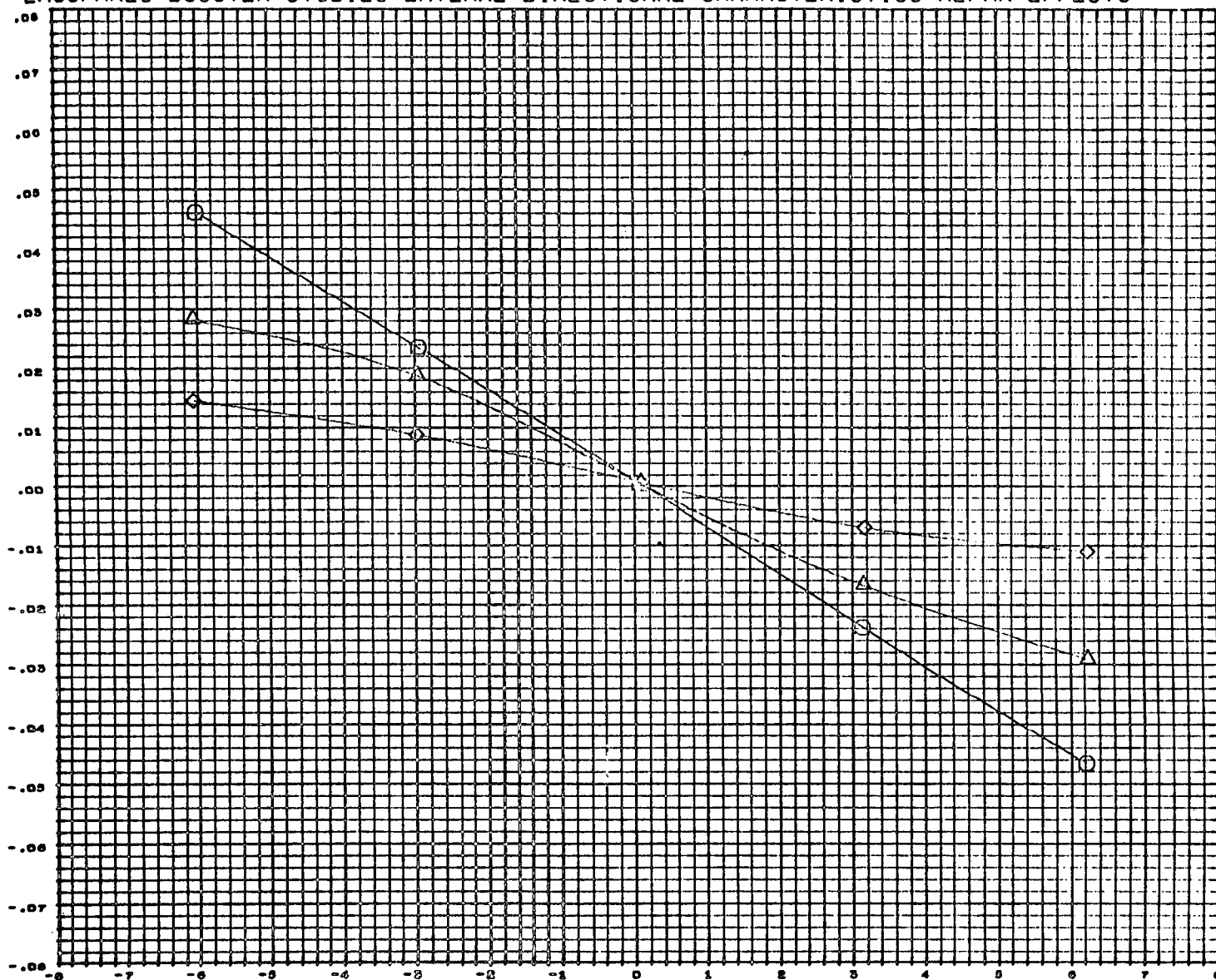
ALPHA	CNDPOS	INCIDC
0.000	2.000	3.000
6.260	2.000	3.000
15.400	2.000	3.000

REFERENCE INFORMATION		
SREF	1.3550	50.FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0167	FEET
SCALE	0.0150	SCALE

MACH 0.699

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)



SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL
(JN3054)
(JN3055)
(JN3056)

CONFIGURATION DESCRIPTION
NBRDC-3210, H8FC/LM8C BOOSTER 01C2F2W1V1
NBRDC-3210, H8FC/LM8C BOOSTER 01C2F2W1V1
NBRDC-3210, H8FC/LM8C BOOSTER 01C2F2W1V1

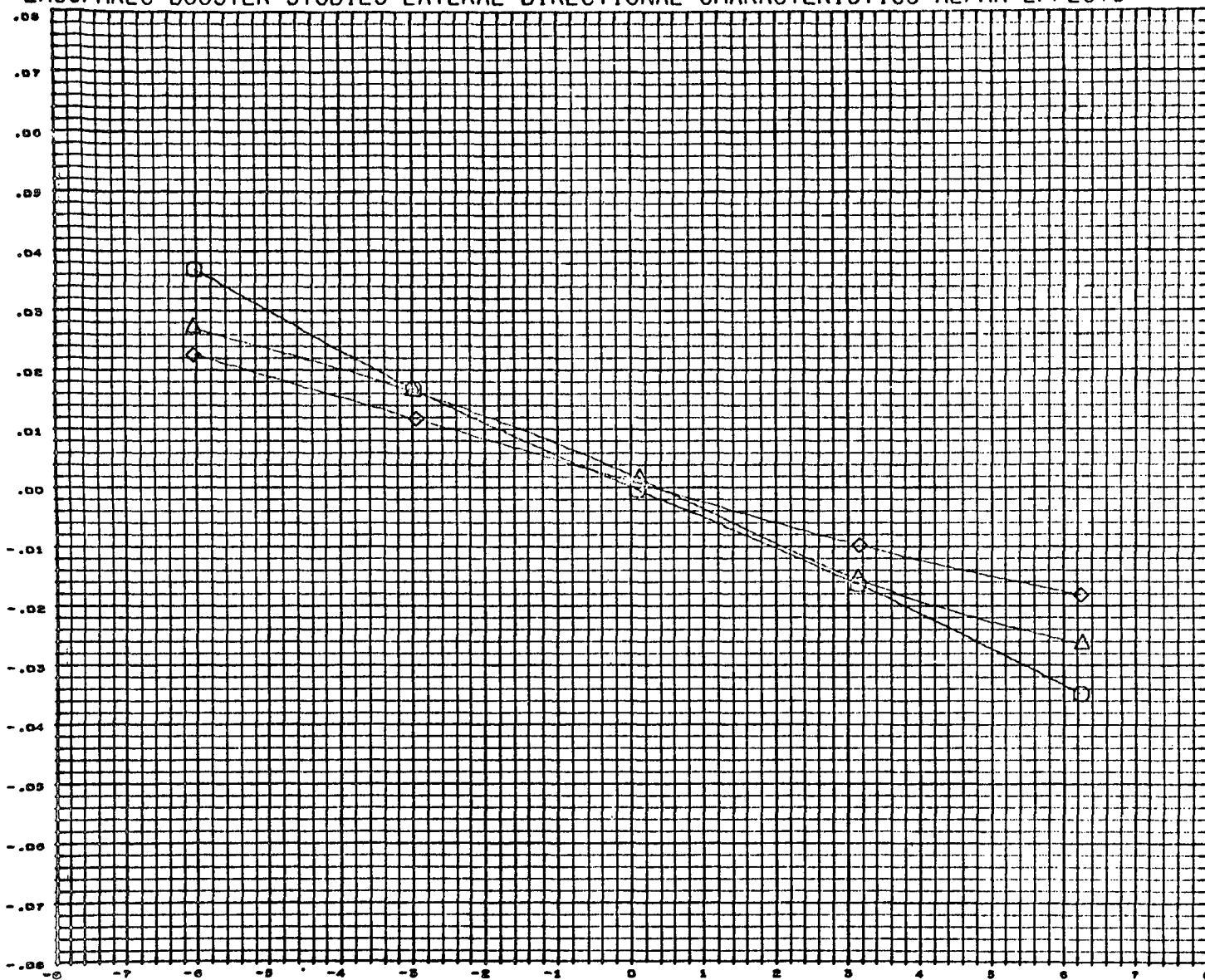
ALPHA	CNDPOS	INCIDC
0.000	2.000	3.000
6.200	2.000	3.000
15.400	2.000	3.000

REFERENCE INFORMATION
SREF 1.3550 SQ.FT.
LREF 3.4930 FEET
OREF 3.4930 FEET
XMRP 2.5990 FEET
YMRP 0.0000 FEET
ZMRP 0.0167 FEET
SCALE 0.0150 SCALE

MACH 0.797




LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)



SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL

(JN3054) 
(JN3055) 
(JN3056) 

CONFIGURATION DESCRIPTION

NBRDC-3210, M8FC/LMSC BOOSTER B1C2F2W1V1
NBRDC-3210, M8FC/LMSC BOOSTER B1C2F2W1V1
NBRDC-3210, M8FC/LMSC BOOSTER B1C2F2W1V1

ALPHA

0.000
6.260
15.400

CNDPOS

2.000
2.000
2.000

INCIDC

3.000
3.000
3.000

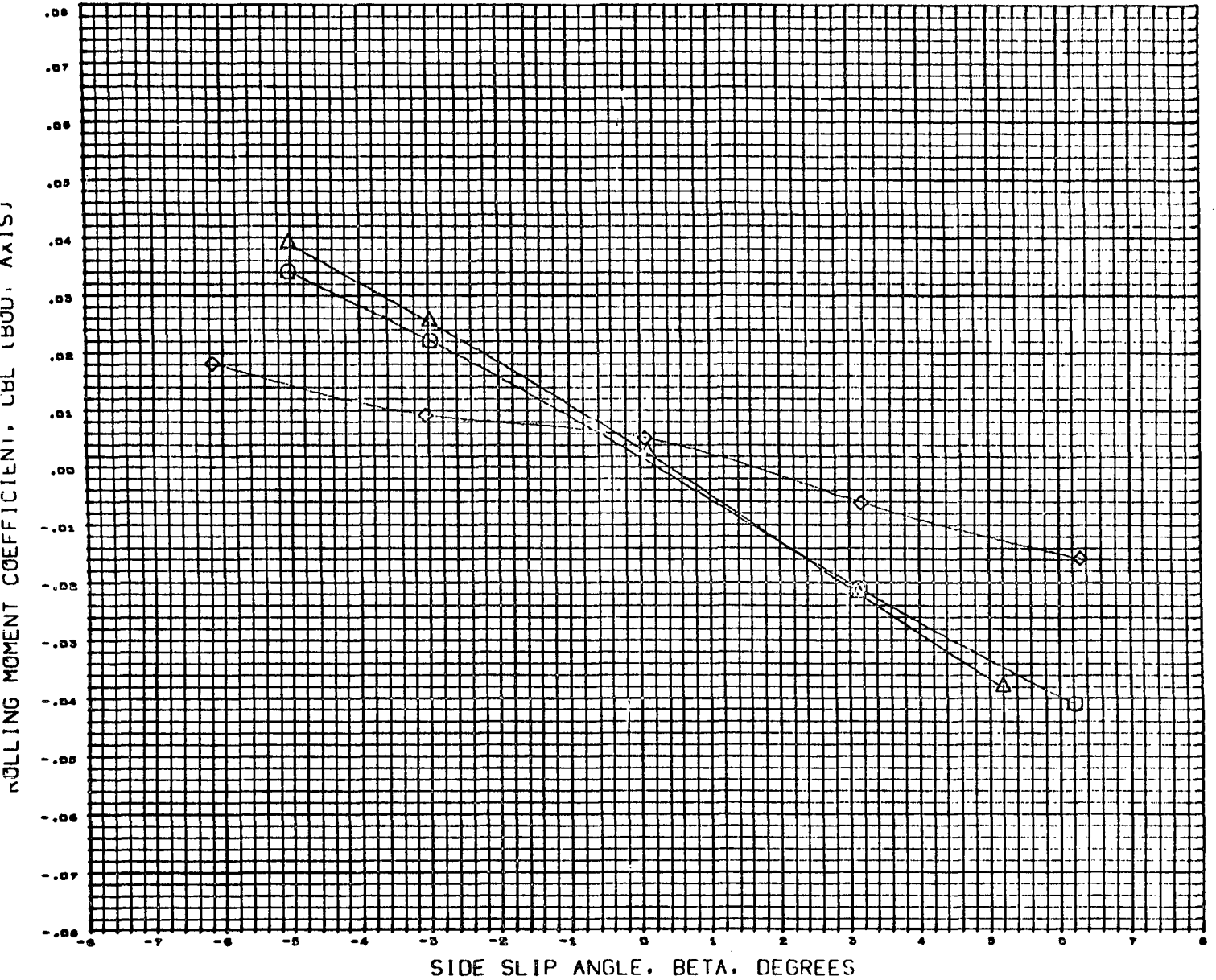
REFERENCE INFORMATION

SREF 1.3550 SQ. FT.
LREF 3.4530 FEET
BREF 3.4530 FEET
XMRP 2.5950 FEET
YMRP 0.0000 FEET
ZMRP 0.0167 FEET
SCALE 0.0150 SCALE

SLACM

0.090

LMSC/HREC BOOSTER STUDIES-LATERAL-DIRECTIONAL CHARACTERISTICS-ALPHA EFFECTS

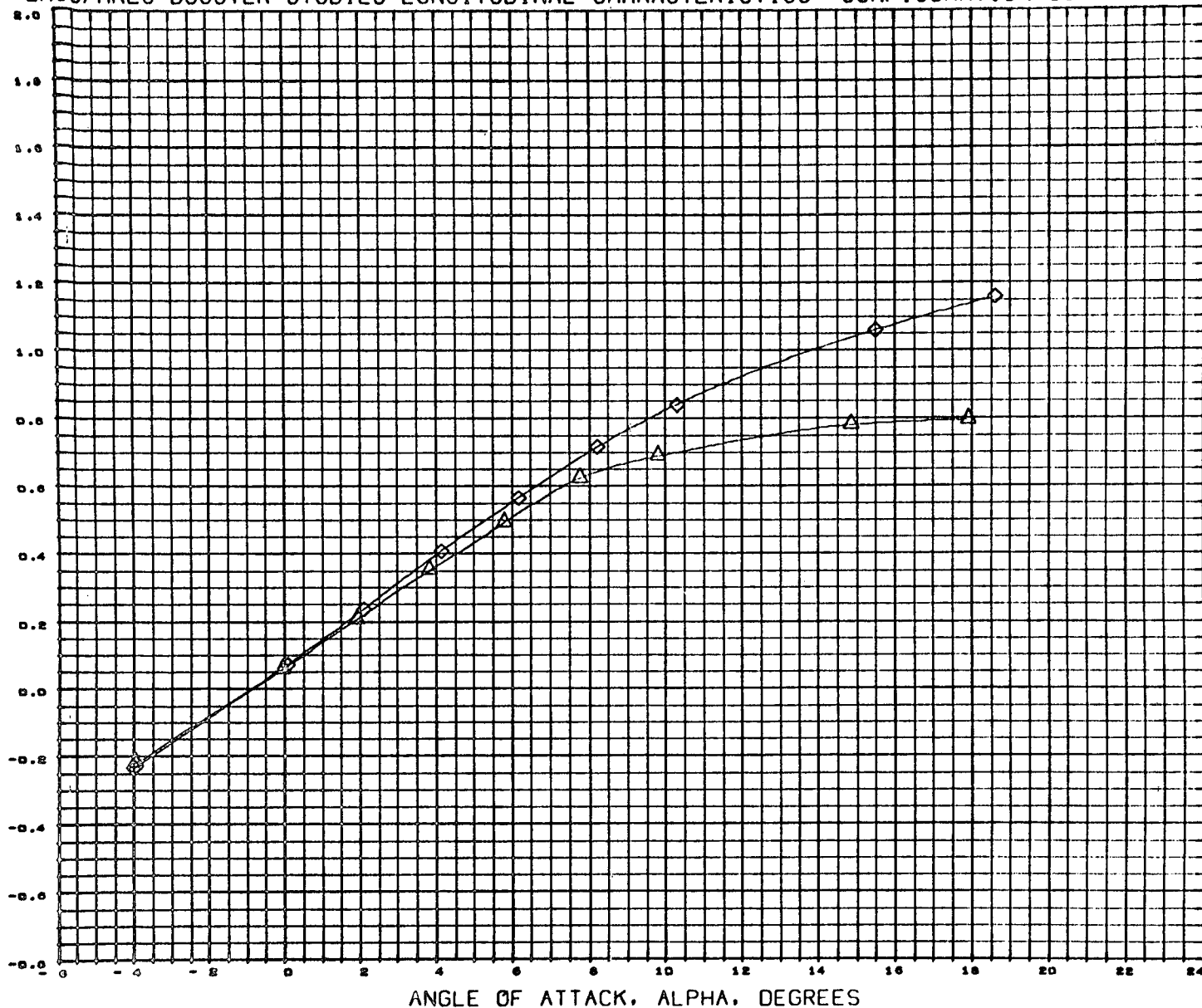


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	CNDPOS	INCIDC	REFERENCE INFORMATION	
(JN3054)	NBRDC-3210, M8FC/LMSC BOOSTER B1C2F2W1V1	0.000	2.000	3.000	SREF	1.3550 SQ.FT.
(JN3055)	NBRDC-3210, M8FC/LMSC BOOSTER B1C2F2W1V1	6.260	2.000	3.000	LREF	3.4530 FEET
(JN3056)	NBRDC-3210, M8FC/LMSC BOOSTER B1C2F2W1V1	15.400	2.000	3.000	BREF	3.4530 FEET
					XMRP	2.5950 FEET
					YMRP	0.0000 FEET
					ZMRP	0.0167 FEET
					SCALE	0.0150 SCALE

MACH 1.000

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

NORMAL FORCE COEFFICIENT, CN



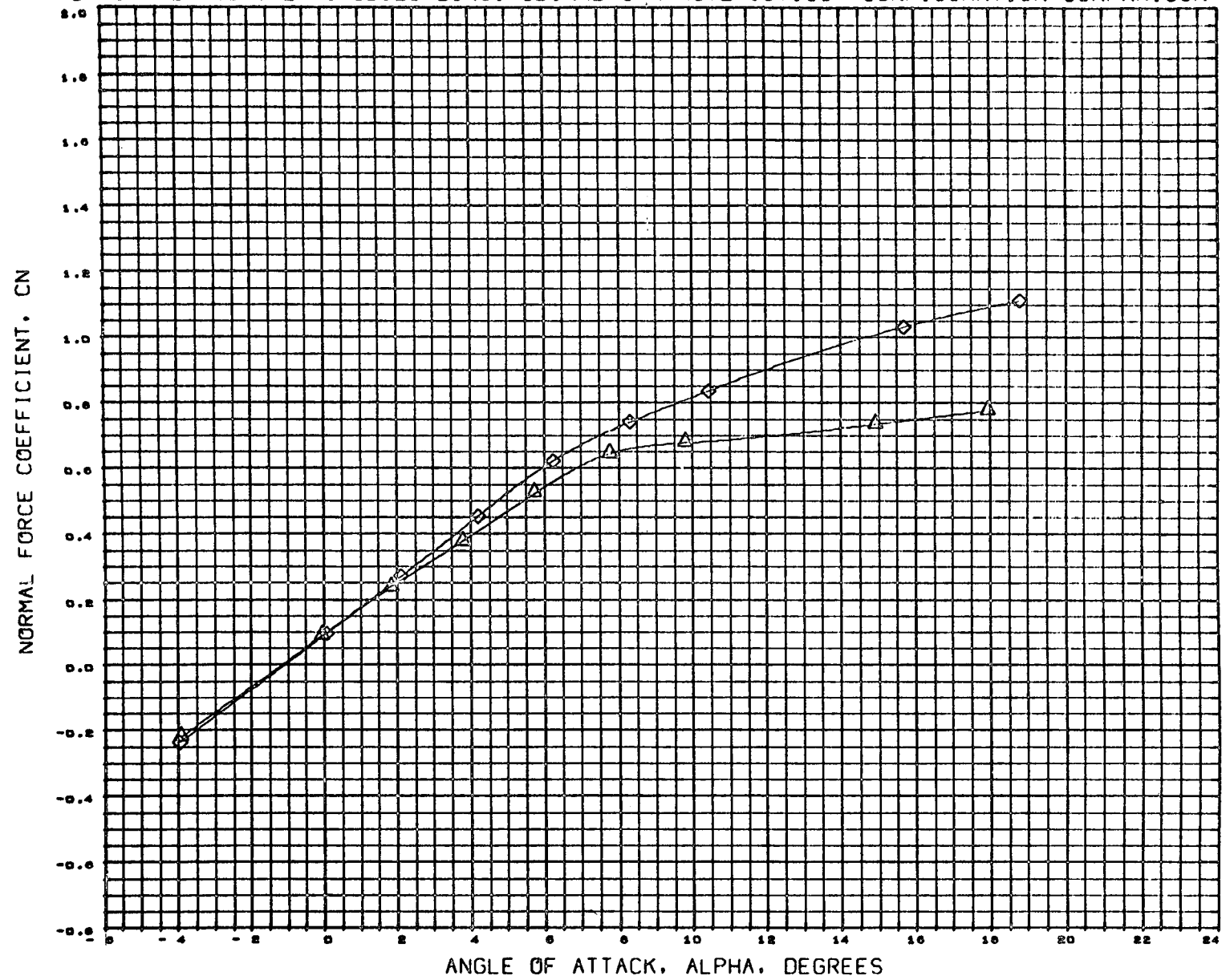
ANGLE OF ATTACK, ALPHA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION	
(RMS055)	DATA NOT AVAILABLE FOR ALL CONDITIONS					SREF	1.3550 SQ. FT.
(RMS065)	NSRDC-3210, MSPC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF	3.4530 FEET
(RMS001)	NSRDC-3210, MSPC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH

0.704

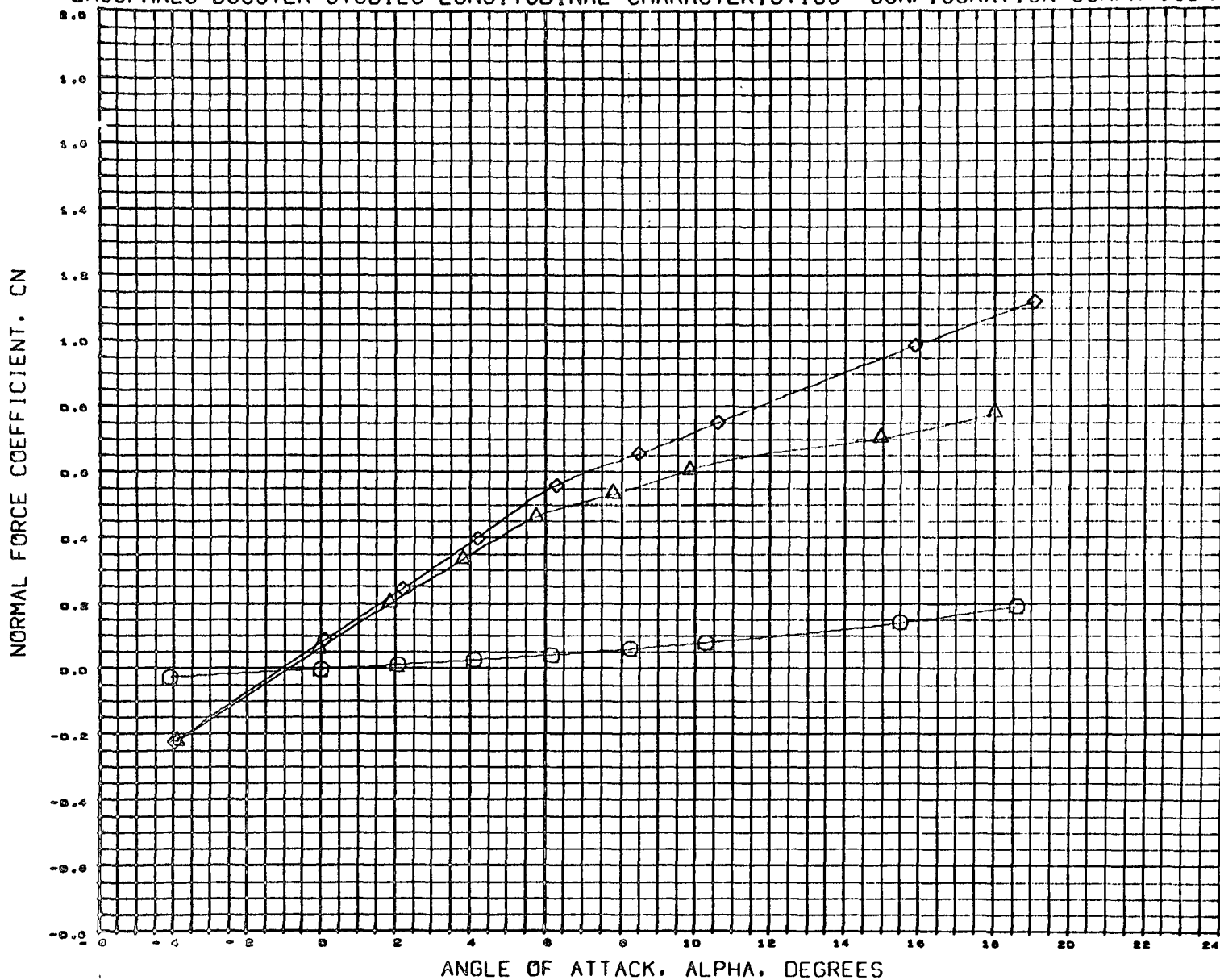
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION	
(RM3069)	DATA NOT AVAILABLE FOR ALL CONDITIONS					SREF	1.3950 SQ.FT.
(RM3068)	NSRDC-3210,M8FC/LM8C BOOSTER B1V1W1	1.000	0.000			LREF	3.4930 FEET
(RM3061)	NSRDC-3210,M8FC/LM8C BOOSTER B1C2P2W1V1	1.000	0.000	1.000	3.000	BREF	3.4930 FEET
						XMRP	2.8950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.800

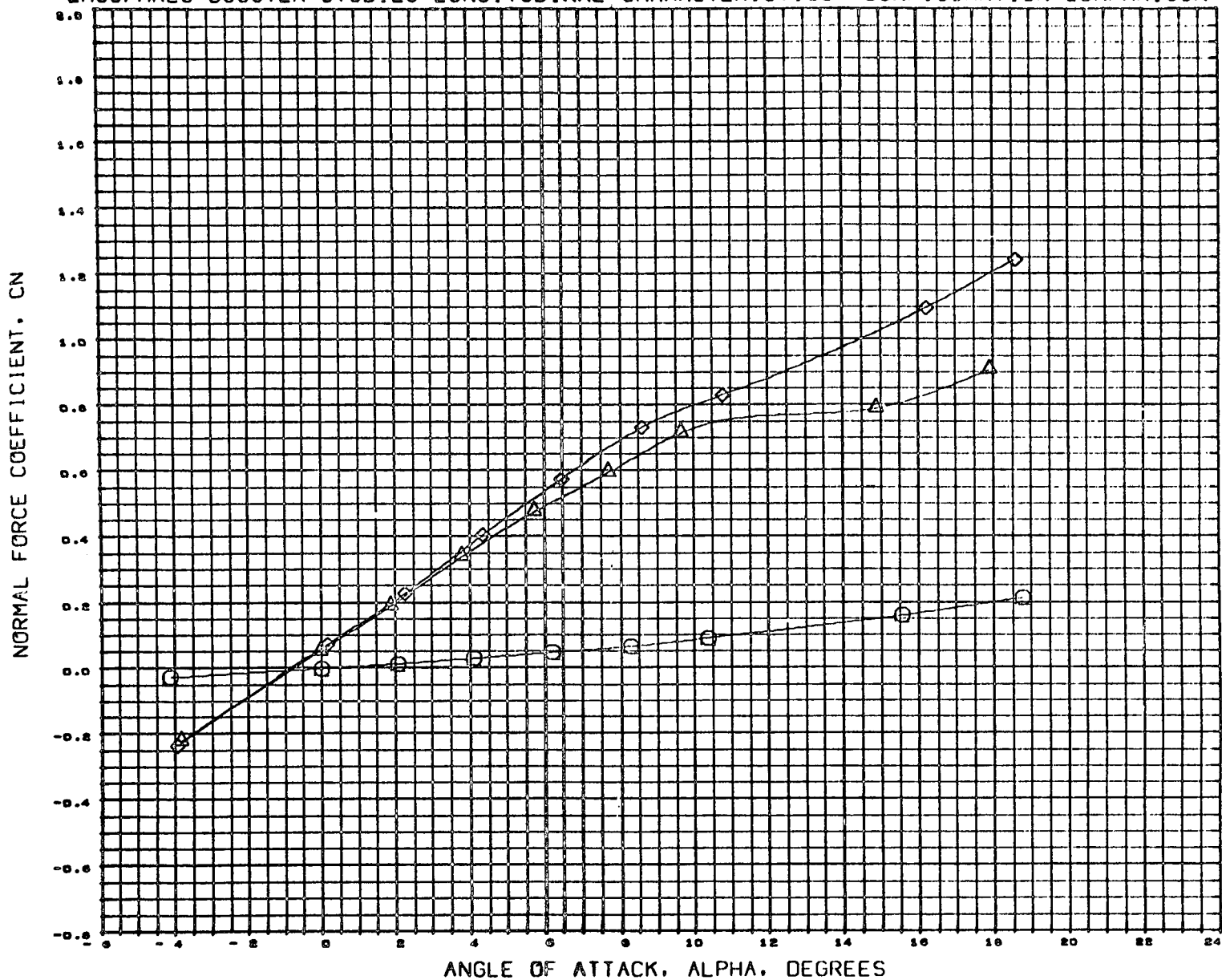
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION	
(RNB000)	NBRDC-5210,HSPC/LMSC BOOSTER B1					SREF	1.3550 SQ.FT.
(RNB001)	NBRDC-5210,HSPC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF	3.4530 FEET
(RNB002)	NBRDC-5210,HSPC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	BREF	3.4530 FEET
						XMRP	8.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

PAGE 0.005

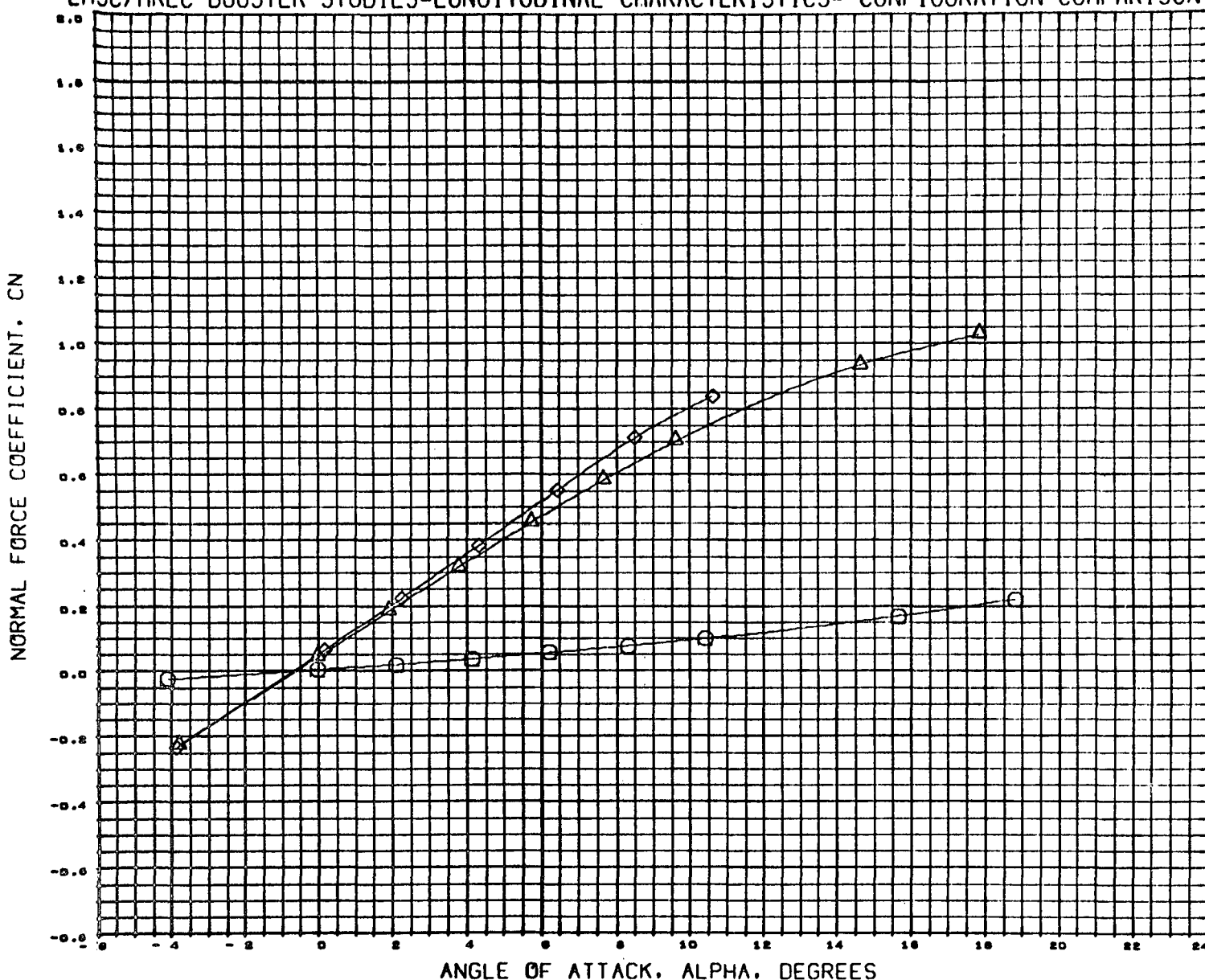
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION	
(RNS000)	NSRDC-3210,MSFC/LMSC BOOSTER S1	1.000	0.000	1.000	3.000	BREF	1.3550 SQ.FT.
(RNS005)	NSRDC-3210,MSFC/LMSC BOOSTER S1V1W1	1.000	0.000	1.000	3.000	LREF	3.4530 FEET
(RNS001)	NSRDC-3210,MSFC/LMSC BOOSTER S1C2F2W3V3	1.000	0.000	1.000	3.000	BREF	3.4530 FEET
						XMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 1.001

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

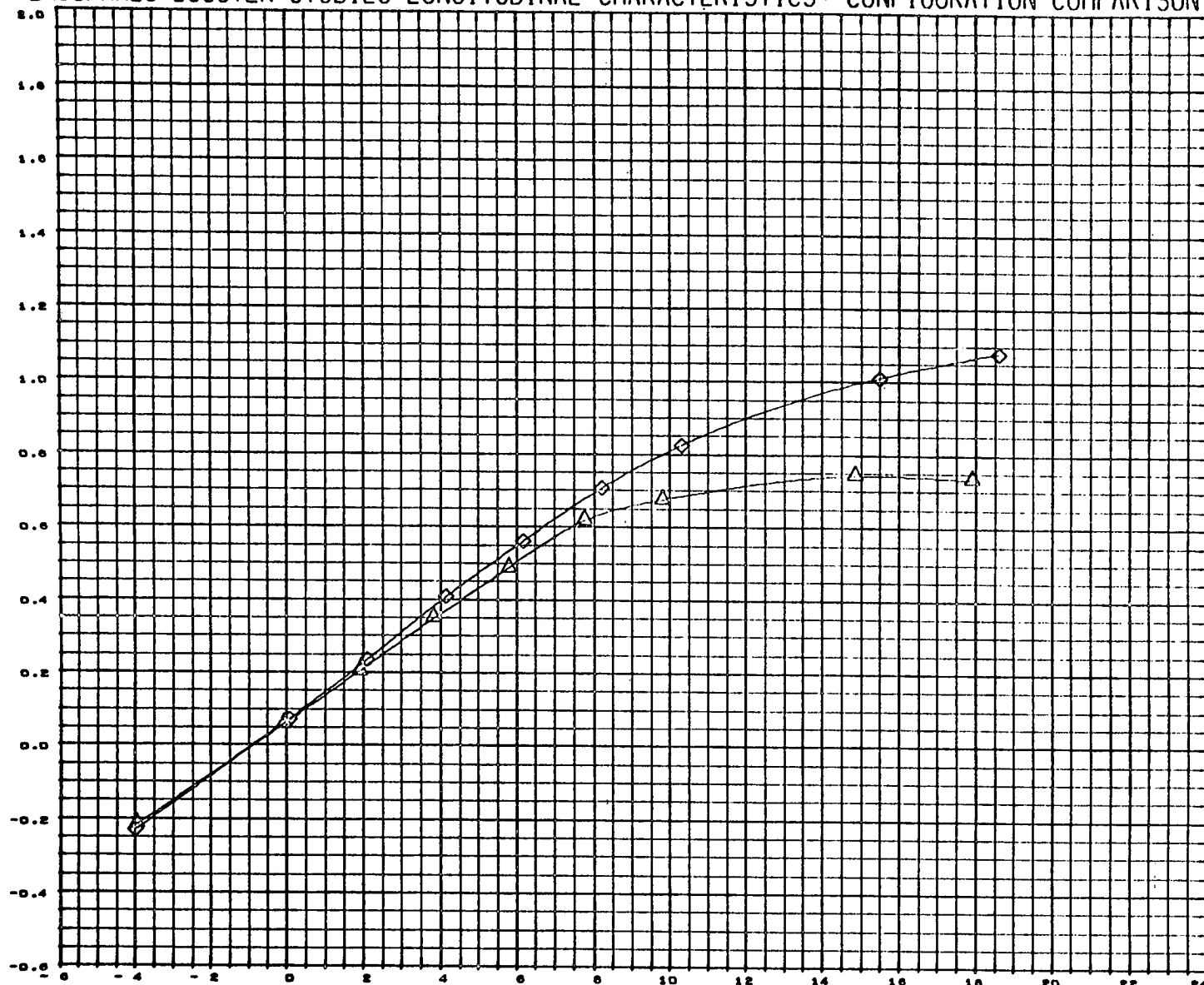


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION	
(RMS009)	MSRDC-3210,MSFC/LMSC BOOSTER B1					BREF	1.3550 SQ.FT.
(RMS009)	MSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF	3.4530 FEET
(RMS001)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	BREF	3.4530 FEET
						XMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

HACH 8.120

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

LIFT COEFFICIENT, CL

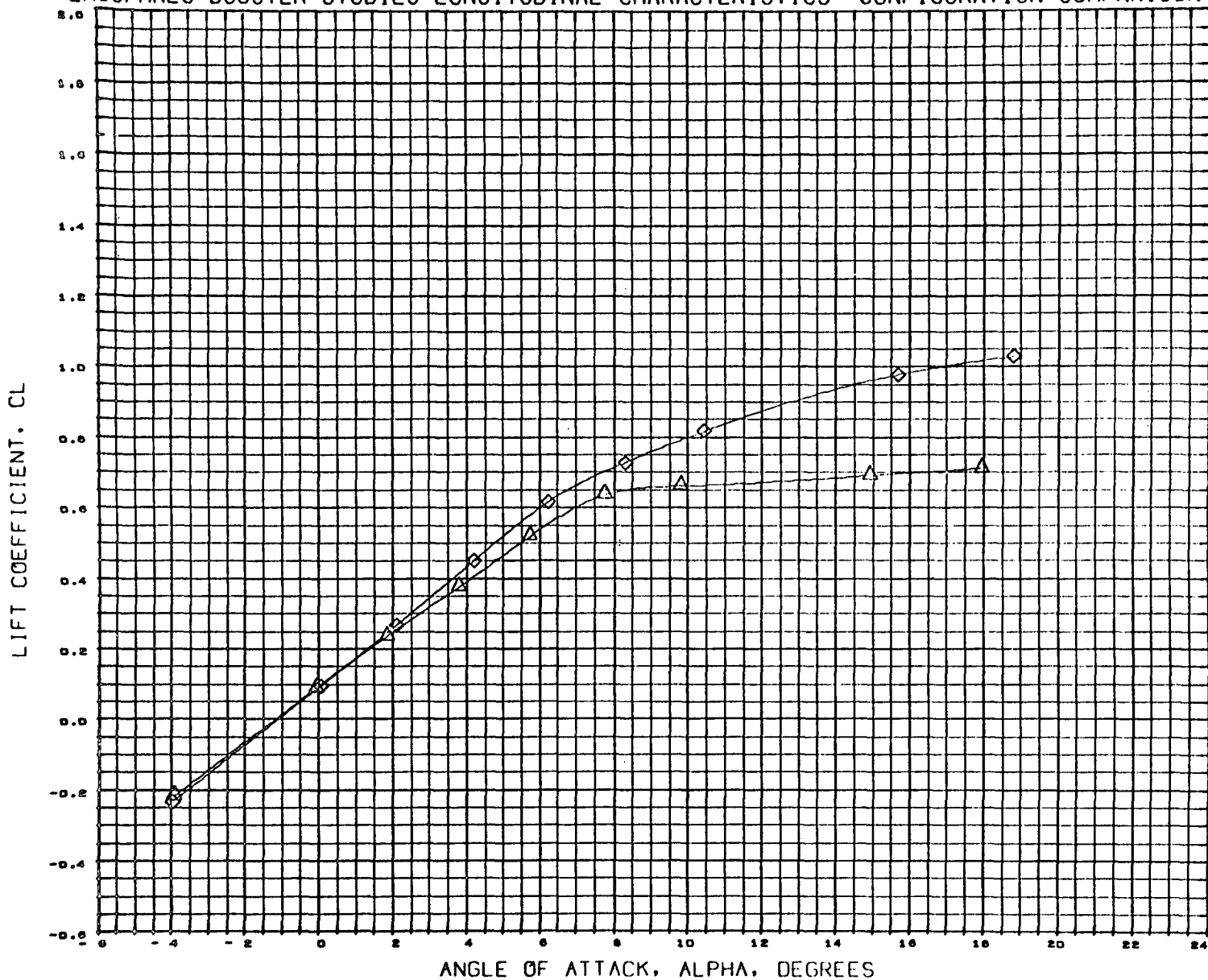


ANGLE OF ATTACK, ALPHA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION	
(RN3009)	DATA NOT AVAILABLE FOR ALL CONDITIONS					SREF	1.3550 SQ.FT.
(RN3005)	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF	3.4530 FEET
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.704

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

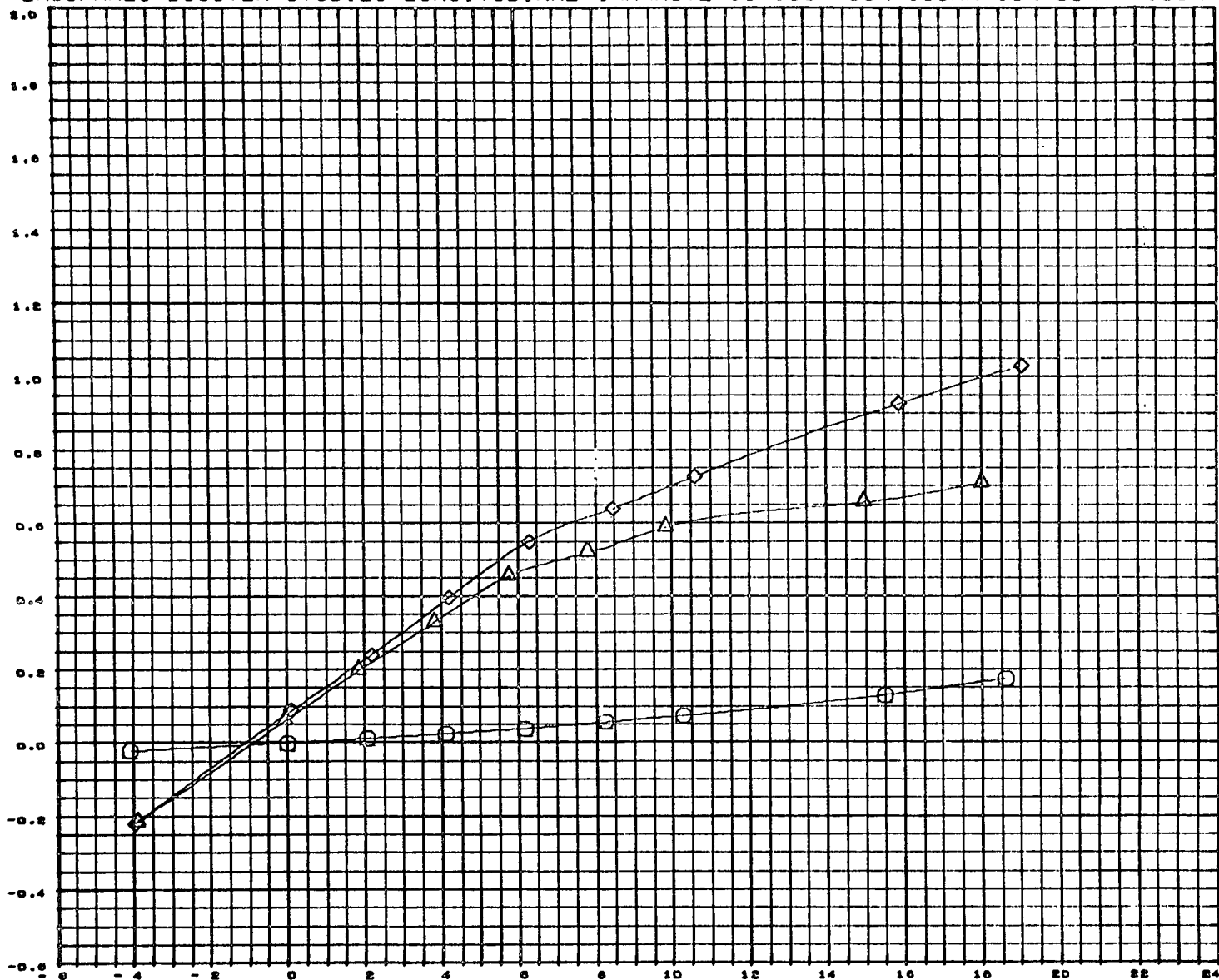


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION		
(RNS000)		DATA NOT AVAILABLE FOR ALL CONDITIONS					SREF	1.3550	80.FT.
(RNS003)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF	3.4530	FEET
(RNS003)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	BREF	3.4530	FEET
							XMRP	2.5950	FEET
							YMRP	0.0000	FEET
							ZMRP	0.0167	FEET
							SCALE	0.0150	SCALE

MACH 0.000

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

LIFT COEFFICIENT, CL

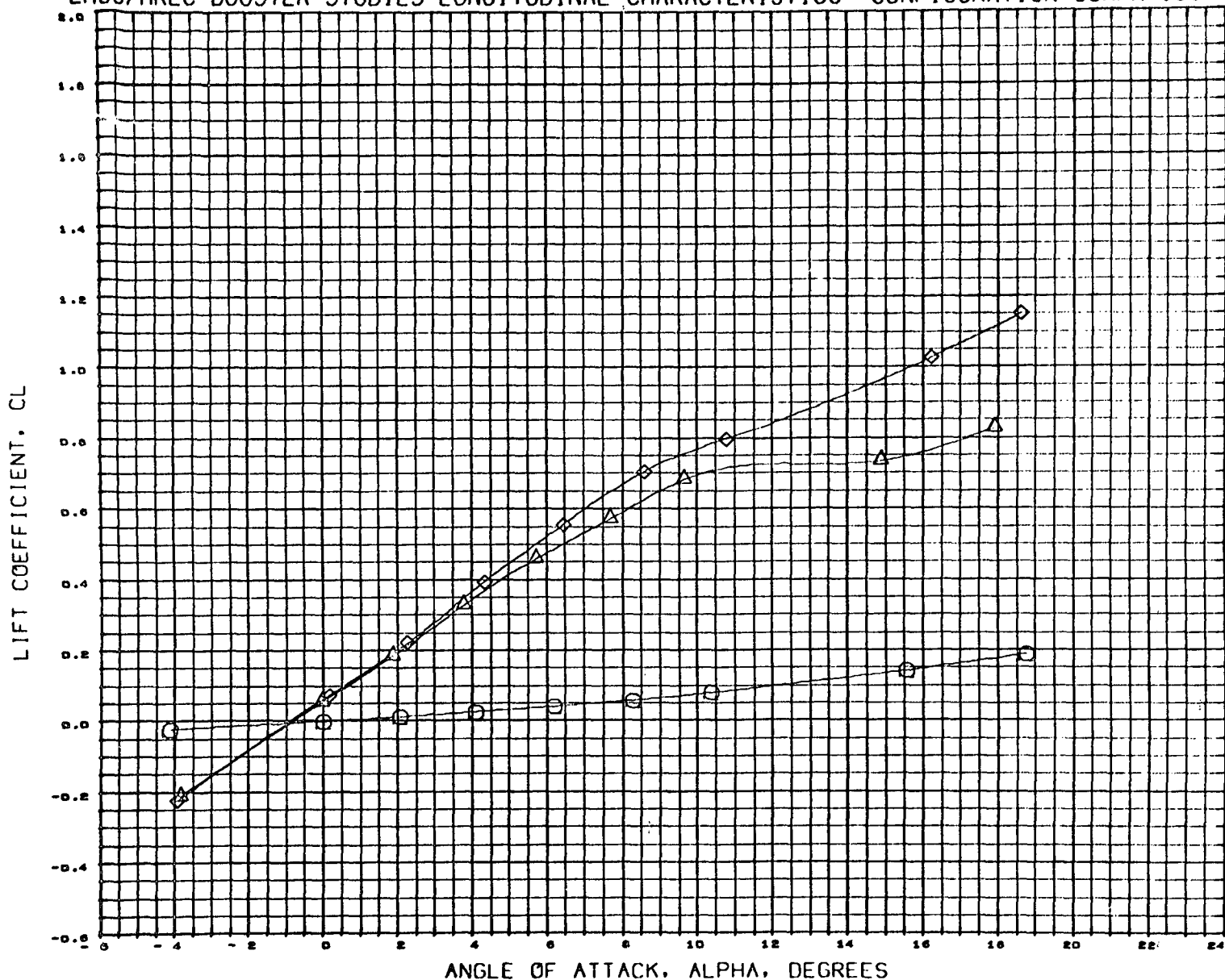


ANGLE OF ATTACK, ALPHA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION	
(RN3009)	MSRDC-3210,MSFC/LMSC BOOSTER B1					BREF	1.3550 SQ.FT.
(RN3005)	MSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF	3.4530 FEET
(RN3001)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	BREF	3.4530 FEET
						XMRP	2.5990 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.905

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

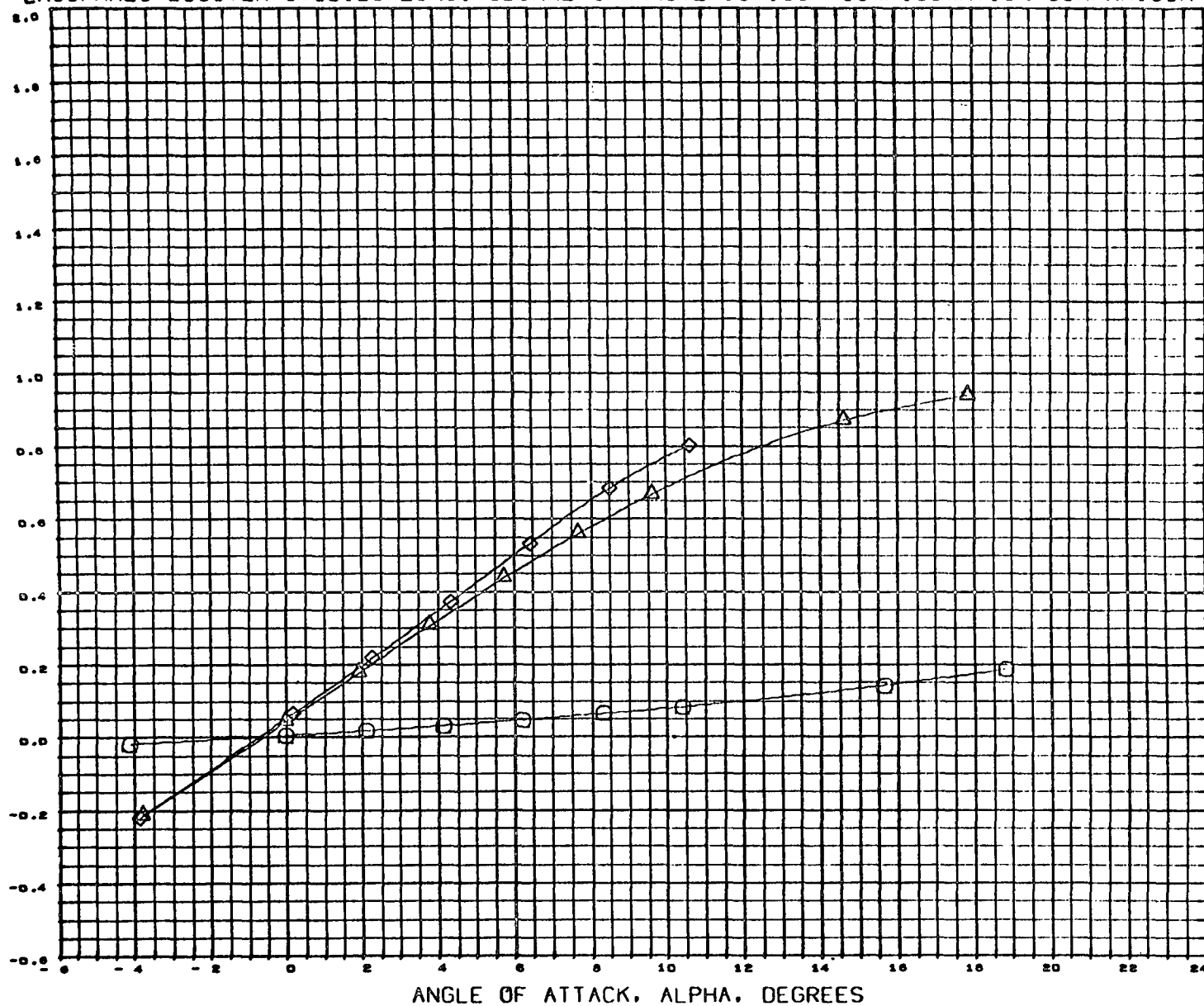


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION	
(RN3060)	NSRDC-3210,MSFC/LMSC BOOSTER B1					BREF	1.3550 SQ.FT.
(RN3065)	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF	3.4530 FEET
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 1.001

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

LIFT COEFFICIENT, CL

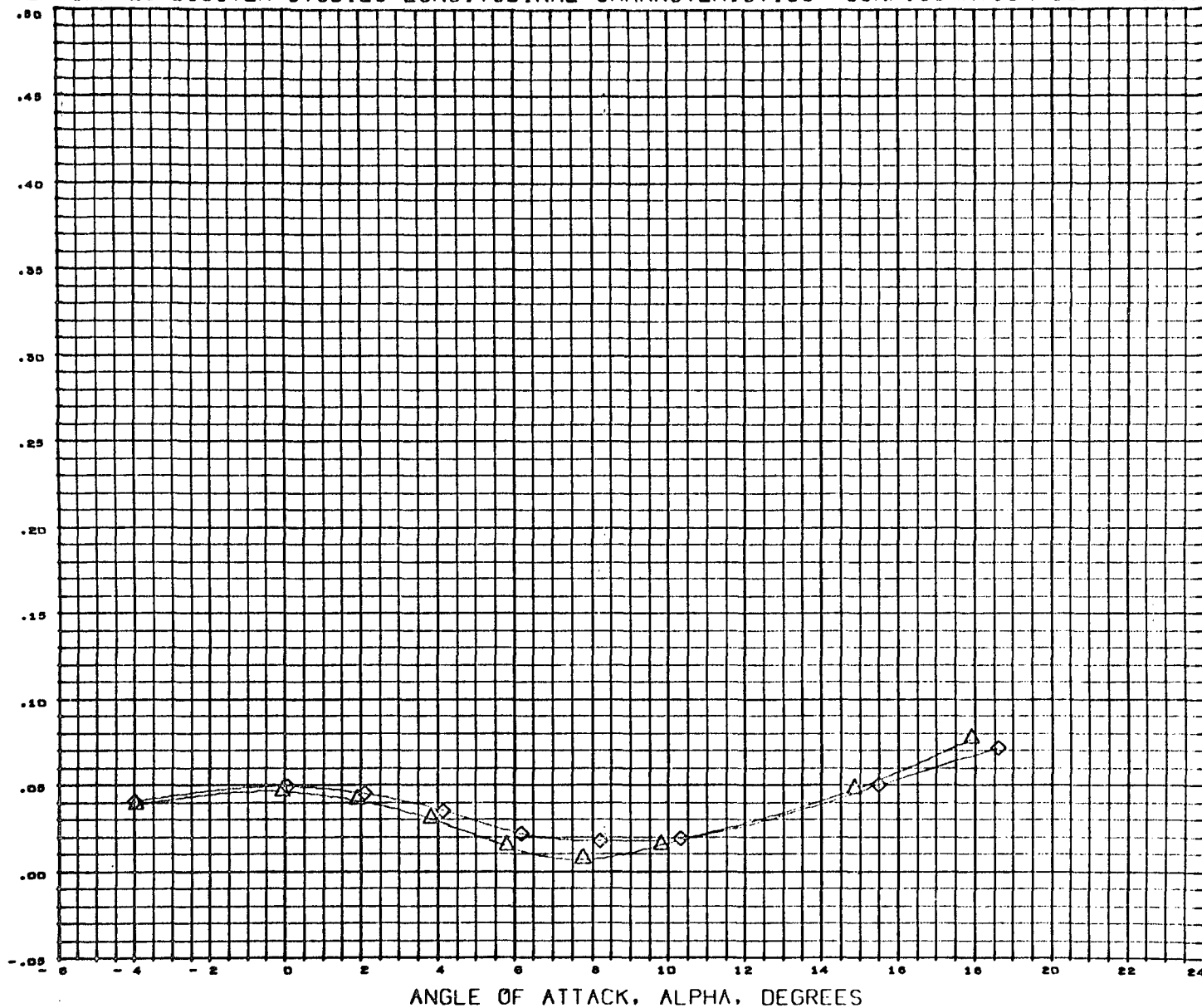


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION	
(RN3069)	NSRDC-3210,MSFC/LMSC BOOSTER B1	1.000	0.000			SREF	1.3550 SQ.FT.
(RN3065)	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF	3.4530 FEET
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 1.126

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

AXIAL FORCE COEFFICIENT, CA

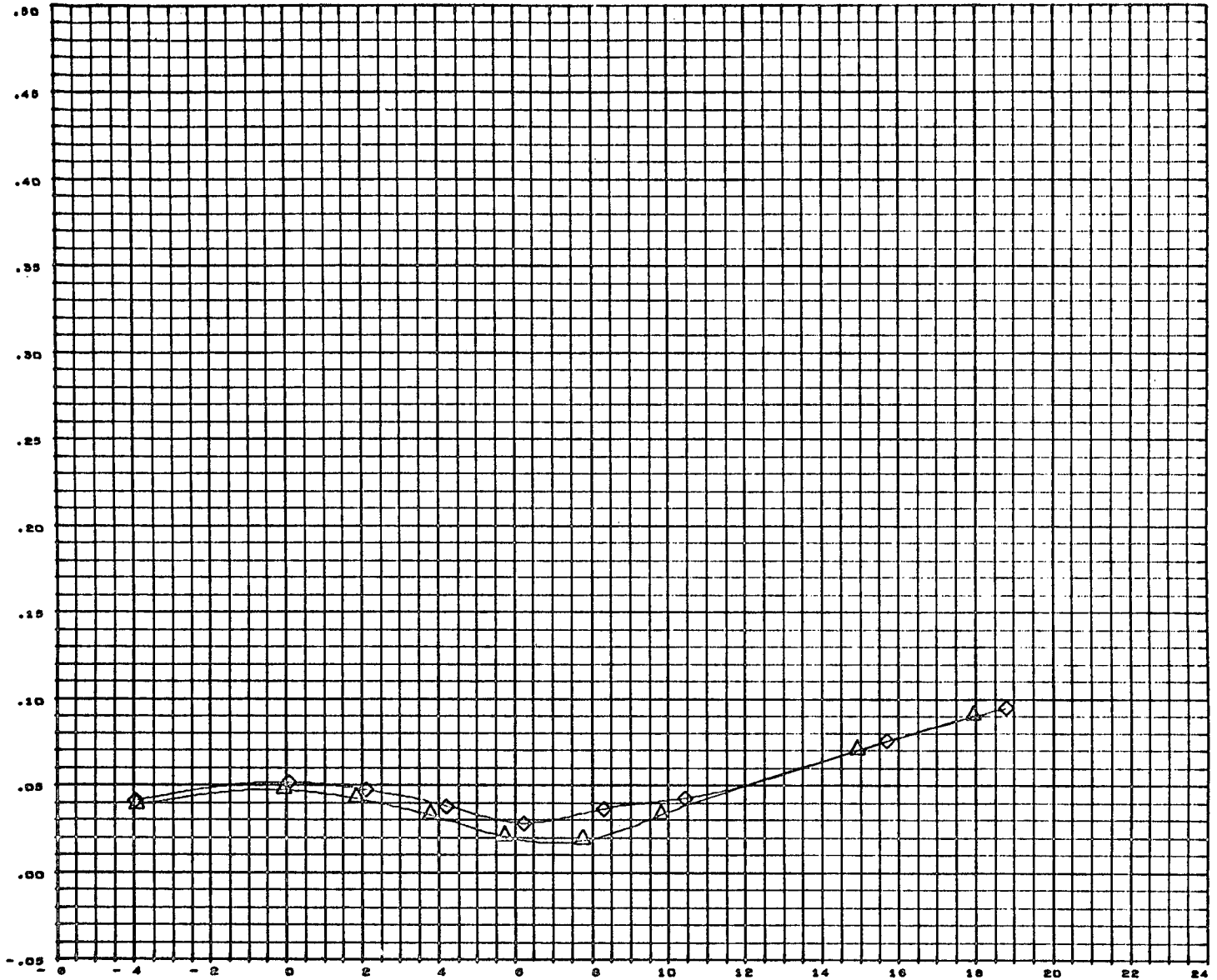


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION	
(RN3069)	DATA NOT AVAILABLE FOR ALL CONDITIONS					SREF	1.3550 SQ. FT.
(RN3065)	NSRDC-3210,HSFC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF	3.4530 FEET
(RN3001)	NSRDC-3210,HSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.704

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

AXIAL FORCE COEFFICIENT, CA



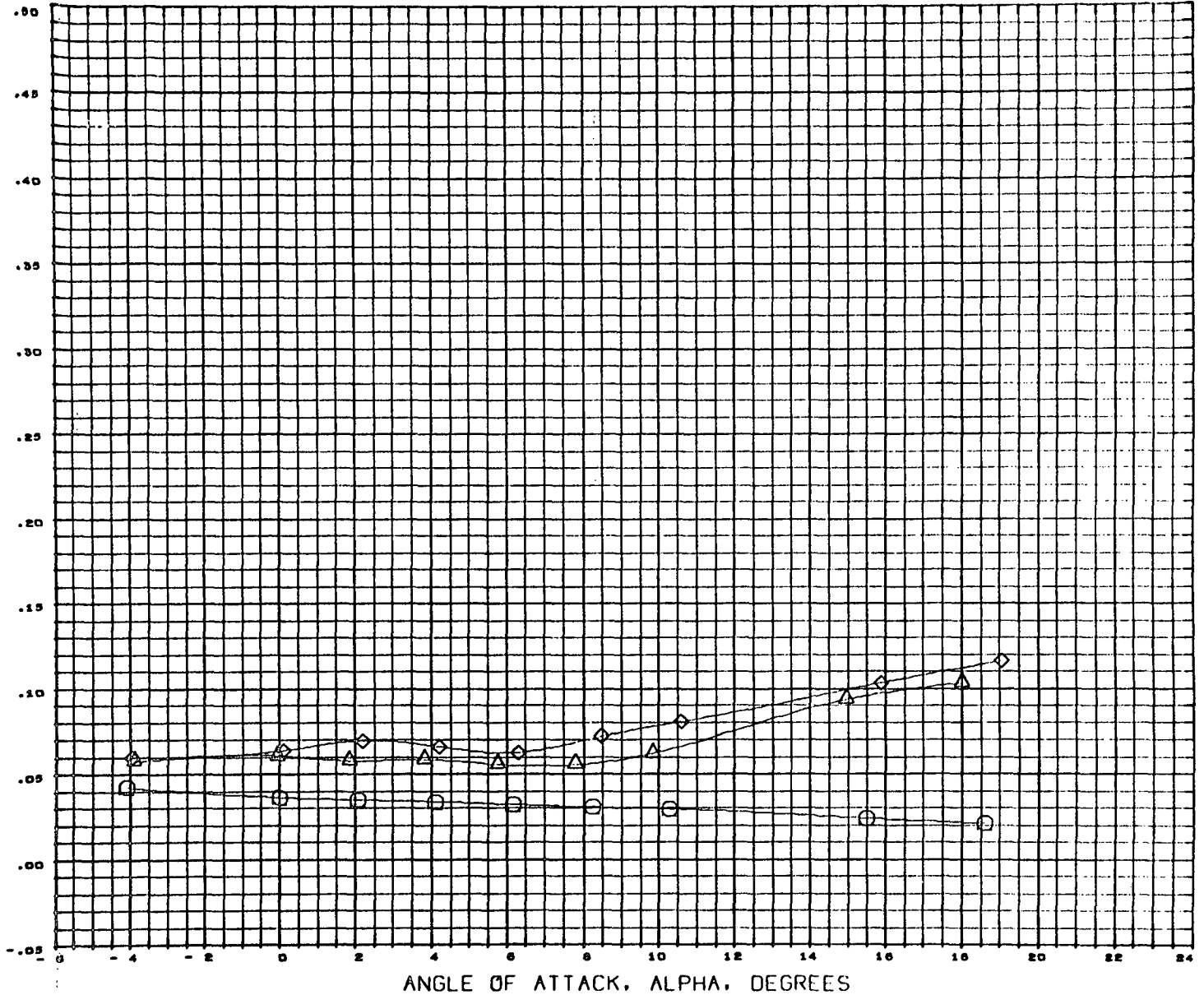
ANGLE OF ATTACK, ALPHA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION	
(R3000)	DATA NOT AVAILABLE FOR ALL CONDITIONS					BREF	1.3550 SQ.FT.
(R3005)	NSRDC-3210,MSFC/LM8C BOOSTER B1V1W1	1.000	0.000			LREF	3.4530 FEET
(R3001)	NSRDC-3210,MSFC/LM8C BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	BREF	3.4530 FEET
						XMRP	2.5050 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.000

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

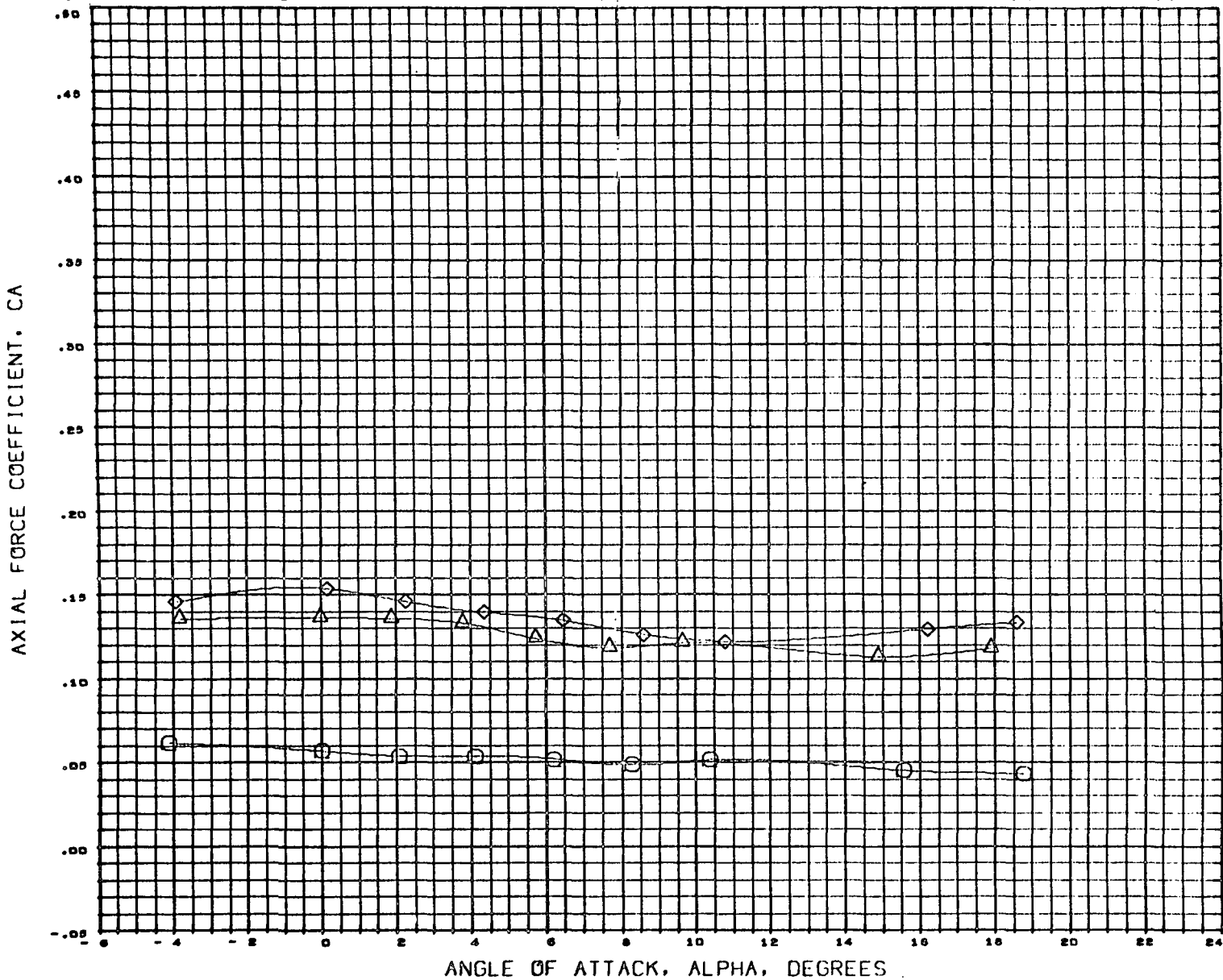
AXIAL FORCE COEFFICIENT, CA



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION	
(RN3060)	NSRDC-3210,MSFC/LMSC BOOSTER B1					BREF	1.3550 SQ.FT.
(RN3065)	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF	3.4930 FEET
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	BREF	3.4530 FEET
						XMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.905

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

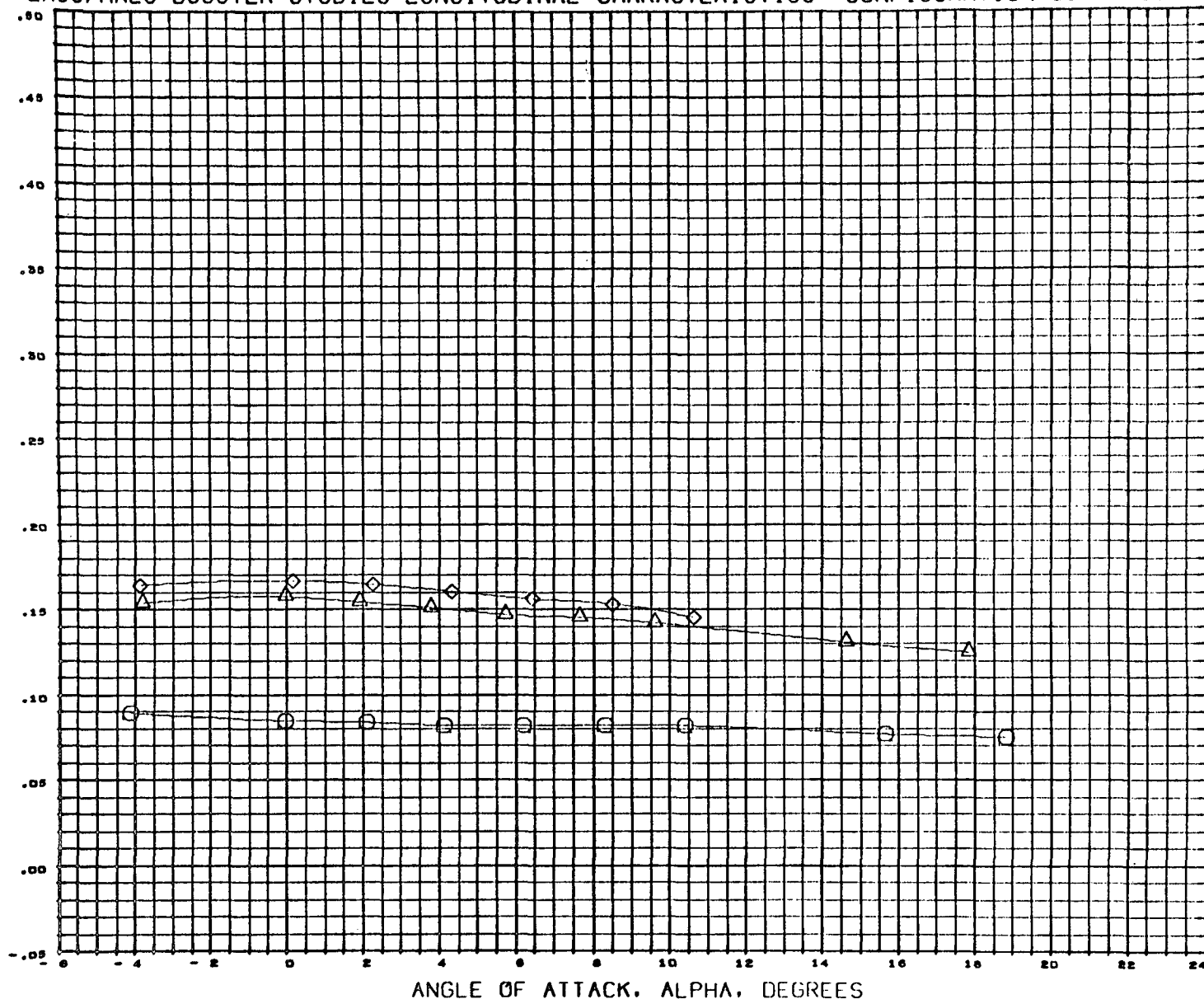


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION	
(RNS009)	NSRDC-3210,MSFC/LMSC BOOSTER B1					SREF	1.3550 80.FT.
(RNS005)	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF	3.4530 FEET
(RNS001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	BREF	3.4530 FEET
						XMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0107 FEET
						SCALE	0.0150 SCALE

MACH 1.001

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

AXIAL FORCE COEFFICIENT, CA

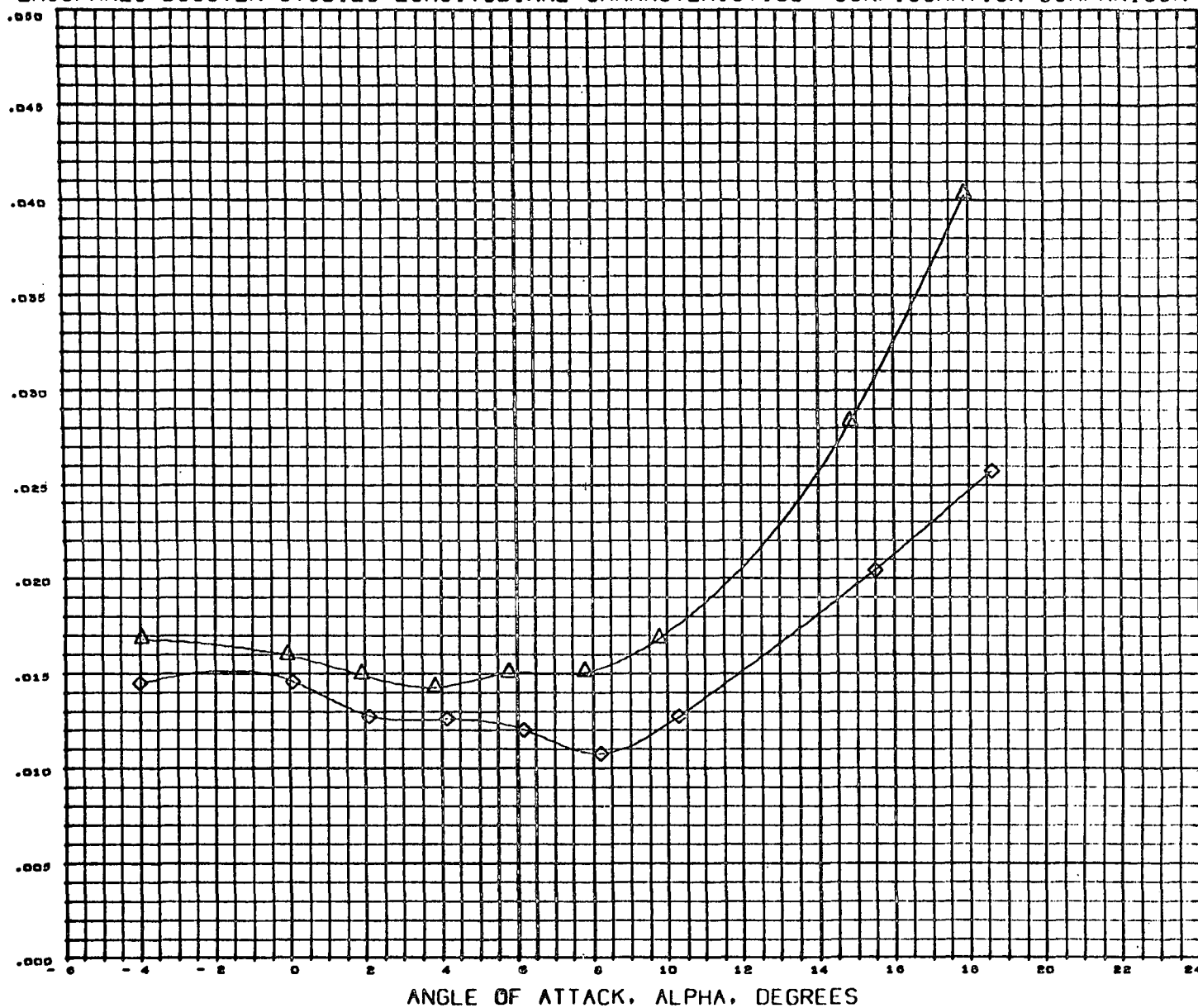


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION	
(RN3005)	NSRDC-3210,MSFC/LMSC BOOSTER B1	1.000	0.000			BREF	1.3550 SQ.FT.
(RN3005)	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	1.000	0.000	1.000	3.000	LREF	3.4530 FEET
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1					BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 1.126

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

BASE AXIAL FORCE COEFFICIENT, CAB



DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(RM3069)	DATA NOT AVAILABLE FOR ALL CONDITIONS
(RM3065)	N8RDC-3210, MSFC/LMSC BOOSTER B1V1W1
(RM3001)	N8RDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1

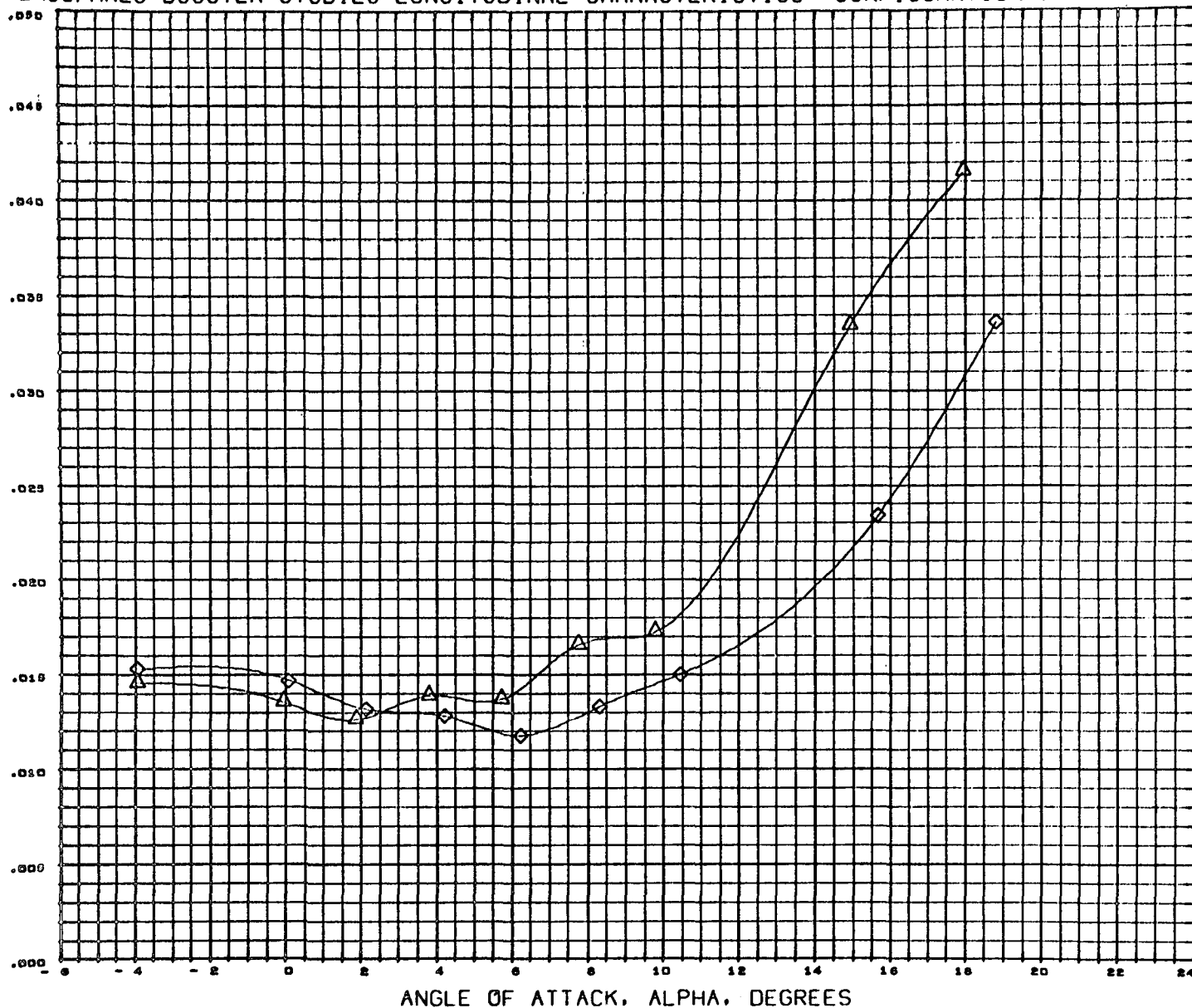
WNGPOS	INCIDW	CNDPOS	INCIDC
1.000	0.000		
1.000	0.000	1.000	3.000

REFERENCE INFORMATION		
BREF	1.3590	89. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRF	2.5050	FEET
YMRF	0.0000	FEET
ZMRF	0.0187	FEET
SCALE	0.0190	SCALE

MACH 0.704

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

BASE AXIAL FORCE COEFFICIENT, CAB

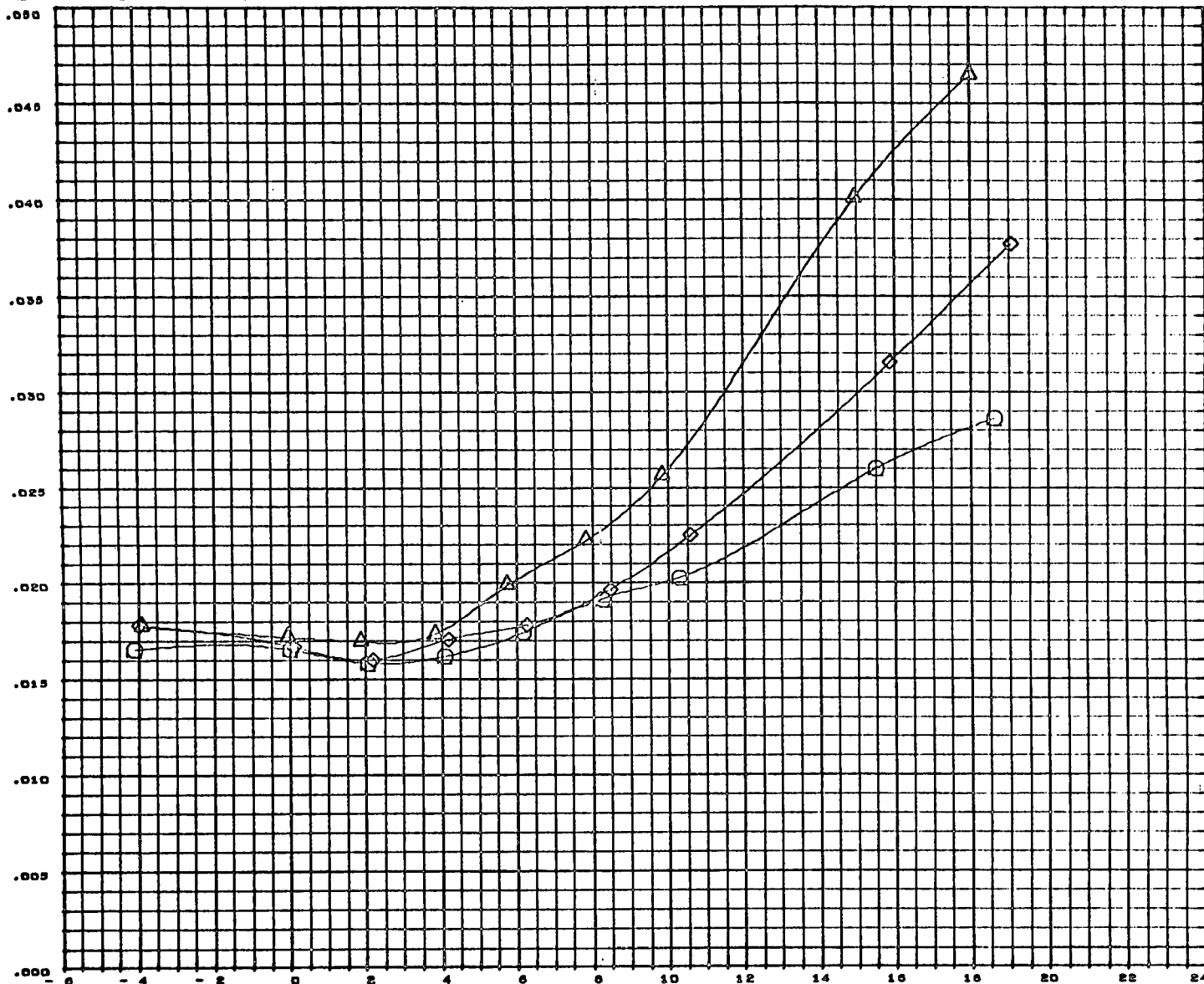


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION	
(RNS000)	DATA NOT AVAILABLE FOR ALL CONDITIONS					SREF	1.3350 SQ.FT.
(RNS005)	NBRDC-3210,MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF	3.4330 FEET
(RNS001)	NBRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	BREF	3.4330 FEET
						XMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.800

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

BASE AXIAL FORCE COEFFICIENT, CAB



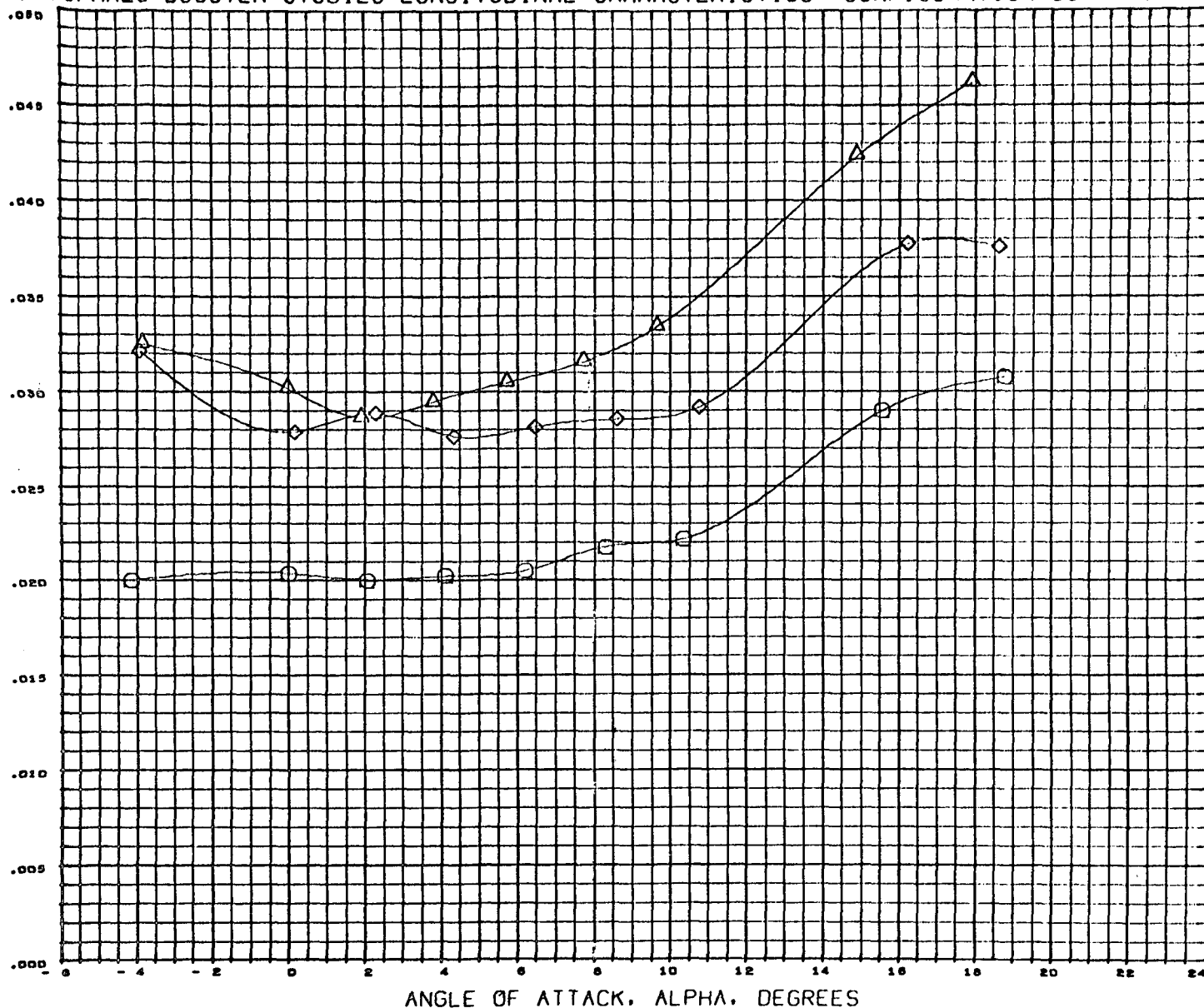
ANGLE OF ATTACK, ALPHA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION	
(RN3009)	MSRDC-3210,MSFC/LMSC BOOSTER B1	1.000	0.000			SREF	1.3550 SQ.FT.
(RN3009)	MSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF	3.4530 FEET
(RN3001)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	BREF	3.4530 FEET
						XMRP	2.9990 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0190 SCALE

MACH 0.905

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

BASE AXIAL FORCE COEFFICIENT, CAB

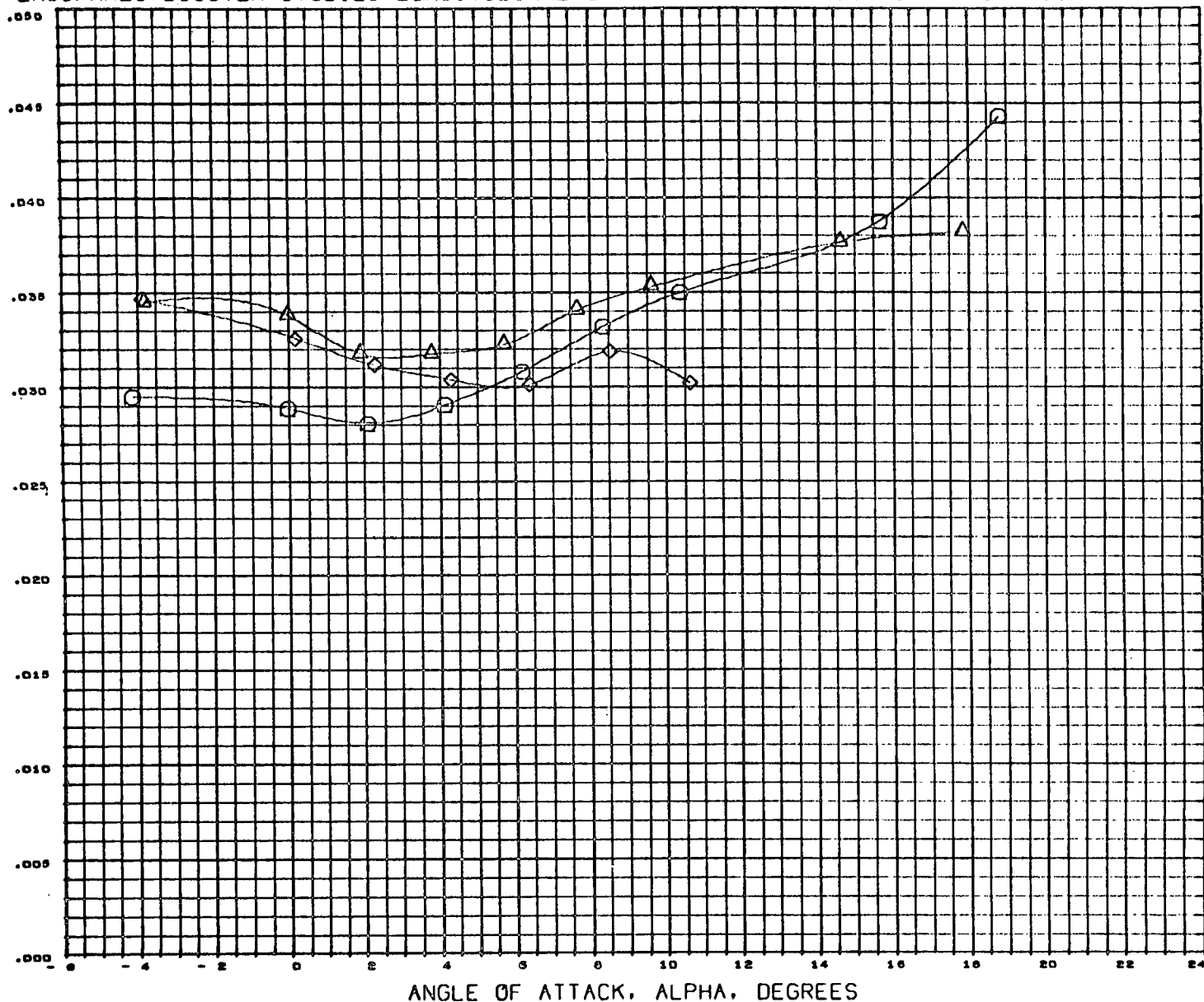


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION	
(RN3000)	NSRDC-3210,MSFC/LMSC BOOSTER B1	1.000	0.000			SREF	1.3550 SQ.FT.
(RN3005)	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF	3.4530 FEET
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	BREF	3.4930 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 1.001

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

BASE AXIAL FORCE COEFFICIENT, CAB

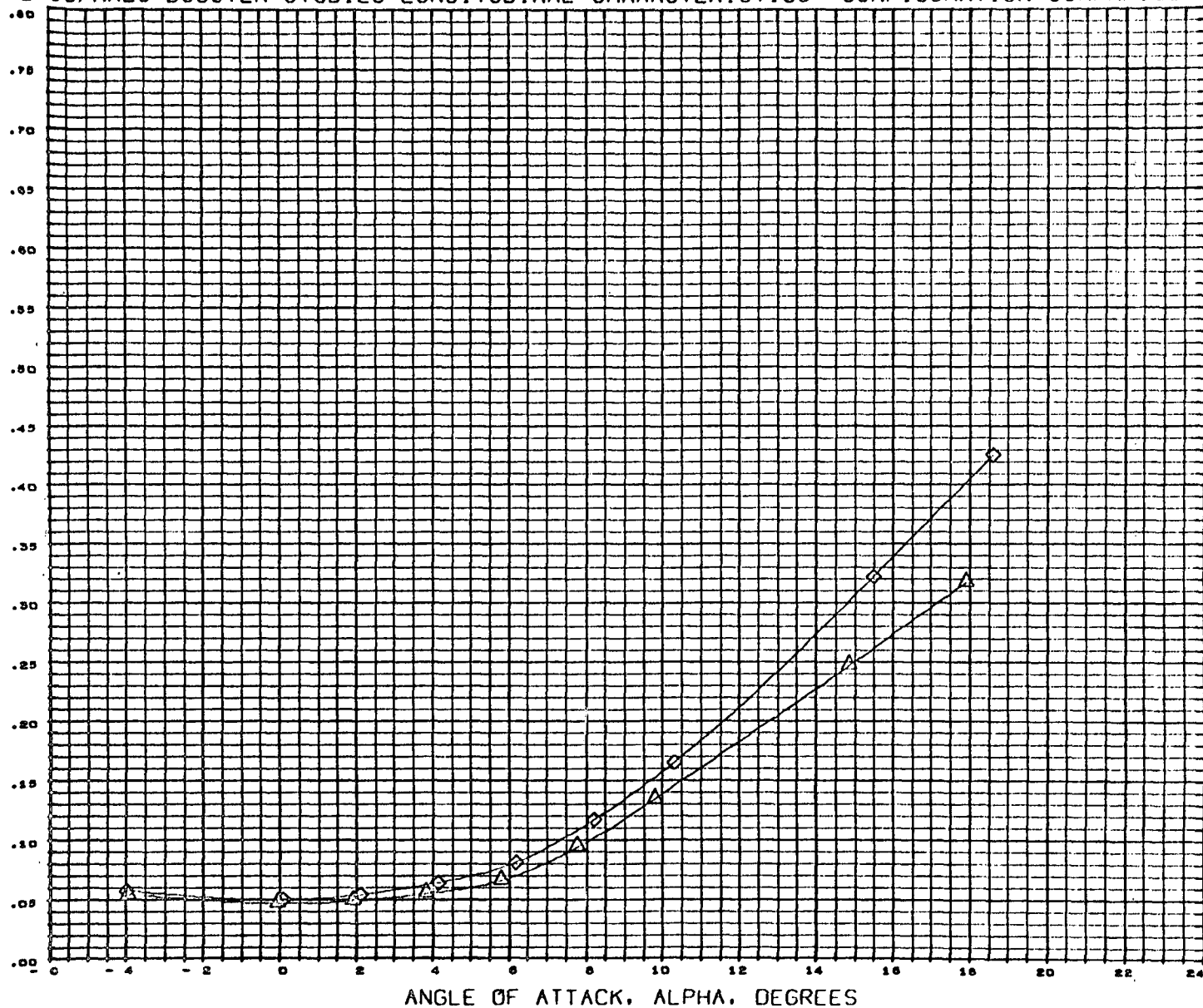


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION	
(RN3009)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1	1.000	0.000	1.000	3.000	SREF	1.3550 SQ.FT.
(RN3005)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	1.000	0.000	1.000	3.000	LREF	3.4530 FEET
(RN3001)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	BREF	3.4530 FEET
							XMRP	2.5950 FEET
							YMRP	0.0000 FEET
							ZMRP	0.0167 FEET
							SCALE	0.0150 SCALE

MACH 1.120

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

DRAG COEFFICIENT, CD



DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(RN3069)	DATA NOT AVAILABLE FOR ALL CONDITIONS
(RN3065)	NSRDC-3210, MSFC/LMSC BOOSTER 81V1W1
(RN3001)	NSRDC-3210, MSFC/LMSC BOOSTER 81C2F2W1V1

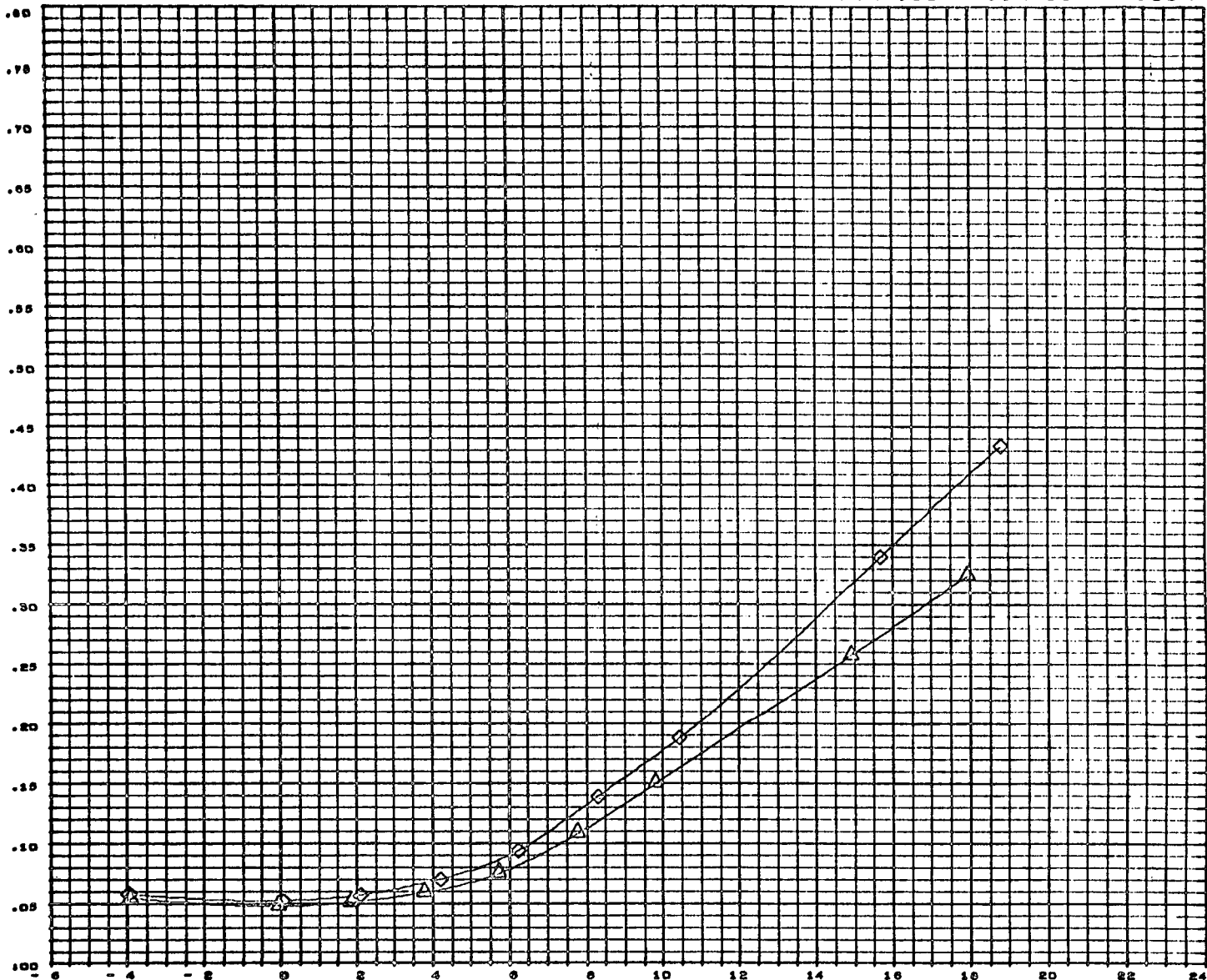
WNGPOS	INCIDW	CNDPOS	INCIDC
1.000	0.000	1.000	3.000
1.000	0.000	1.000	3.000

REFERENCE INFORMATION		
SREF	1.3550	50. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
YMRP	2.5950	FEET
ZMRP	0.0000	FEET
ZMRP	0.0167	FEET
SCALE	0.0150	SCALE

MACH 0.704

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

DRAG COEFFICIENT, CD



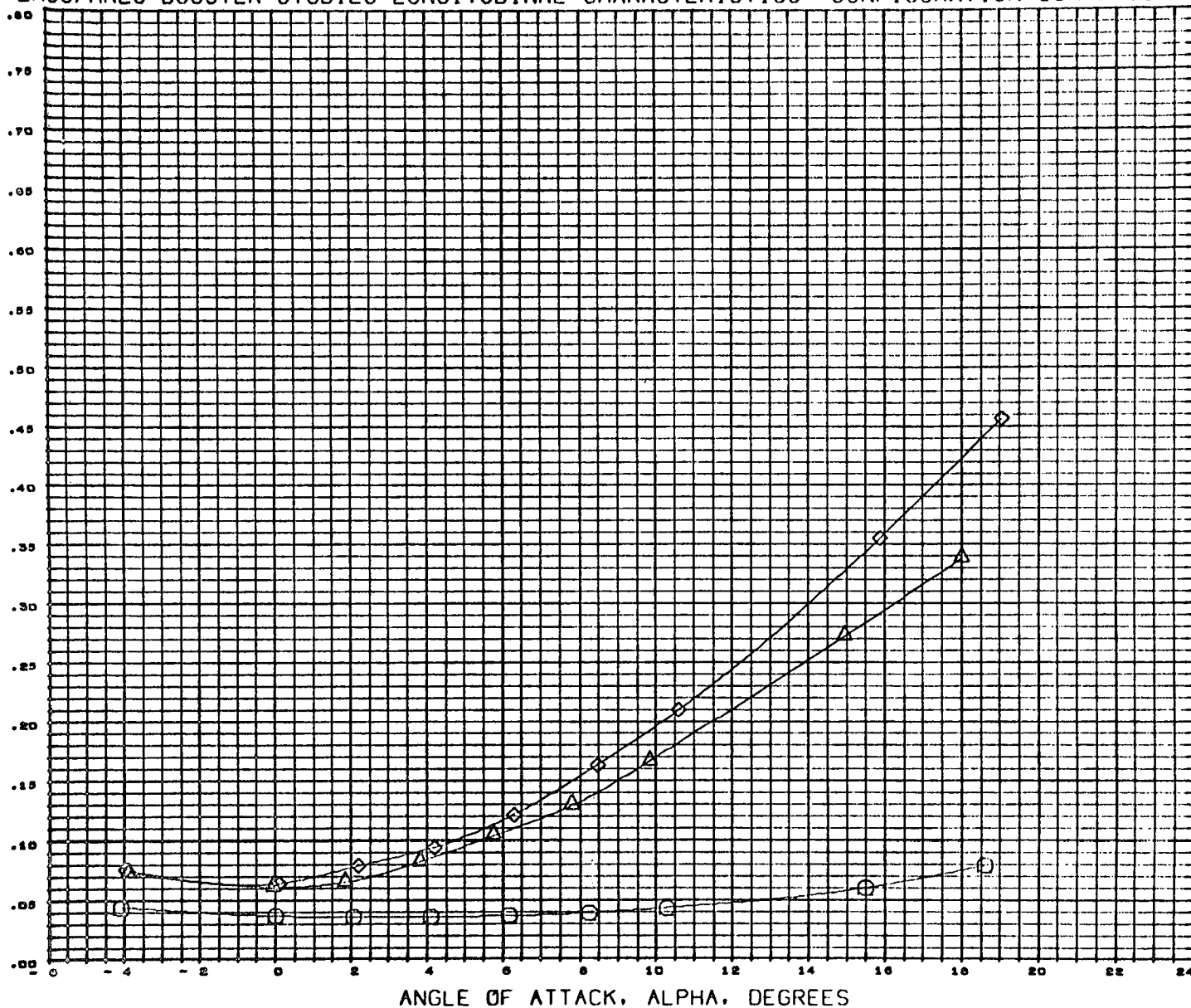
ANGLE OF ATTACK, ALPHA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION	
(RN3000)	DATA NOT AVAILABLE FOR ALL CONDITIONS					SREF	1.3950 SQ.FT.
(RN3000)	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF	3.4530 FEET
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W3V1	1.000	0.000	1.000	3.000	BREF	3.4530 FEET
						XMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.000

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

DRAG COEFFICIENT, CD



ANGLE OF ATTACK, ALPHA, DEGREES

DATA SET SYMBOL
(RN3009)
(RN3009)
(RN3001)

CONFIGURATION DESCRIPTION
N8RDC-3210,MSFC/LMSC BOOSTER B1
N8RDC-3210,MSFC/LMSC BOOSTER B1V1W1
N8RDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1

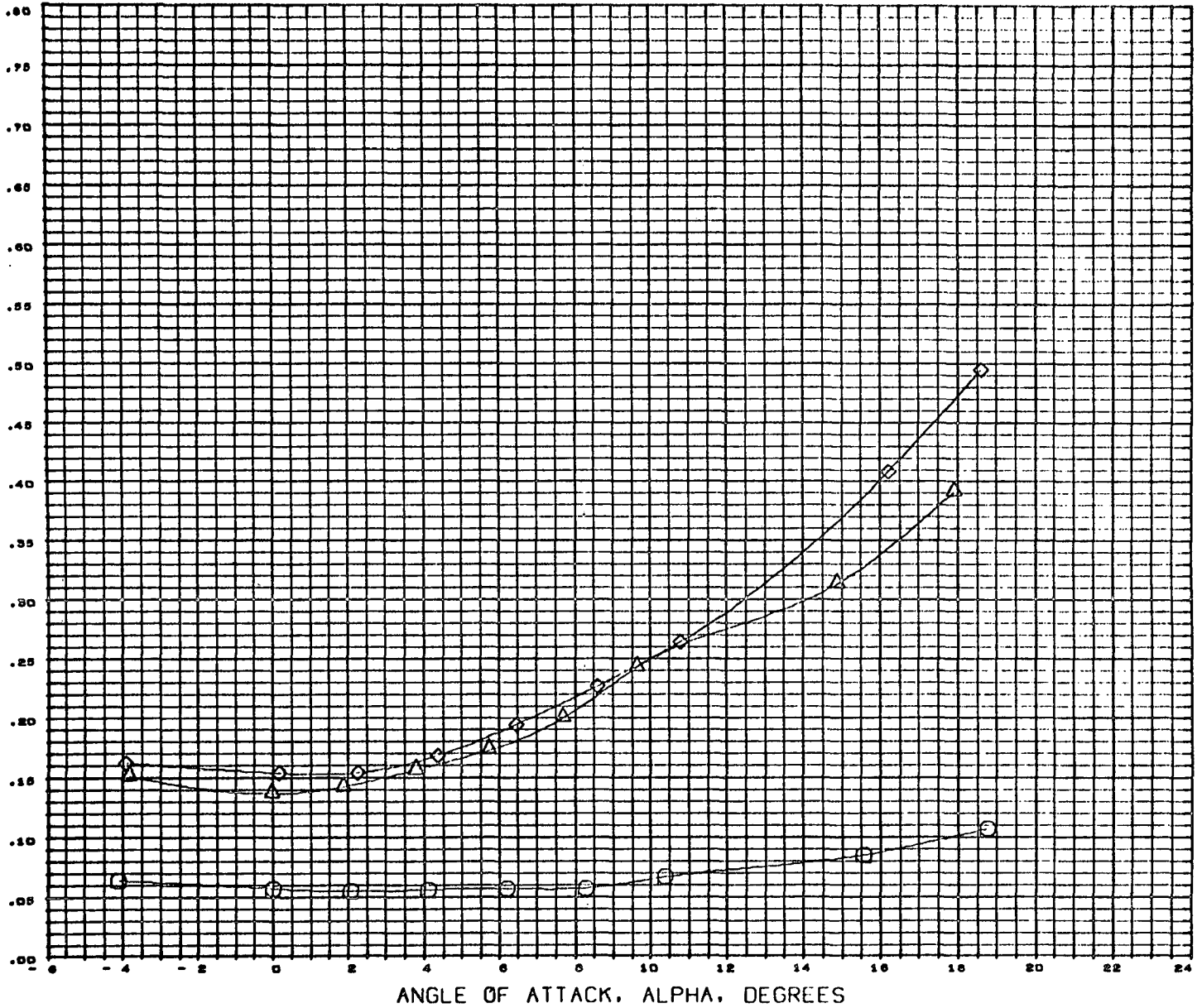
WNGPOS	INCIDW	CNDPOS	INCIDC
1.000	0.000		
1.000	0.000	1.000	3.000

REFERENCE INFORMATION		
SREF	1.3550	SQ. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0167	FEET
SCALE	0.0150	SCALE

MACH 0.903

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

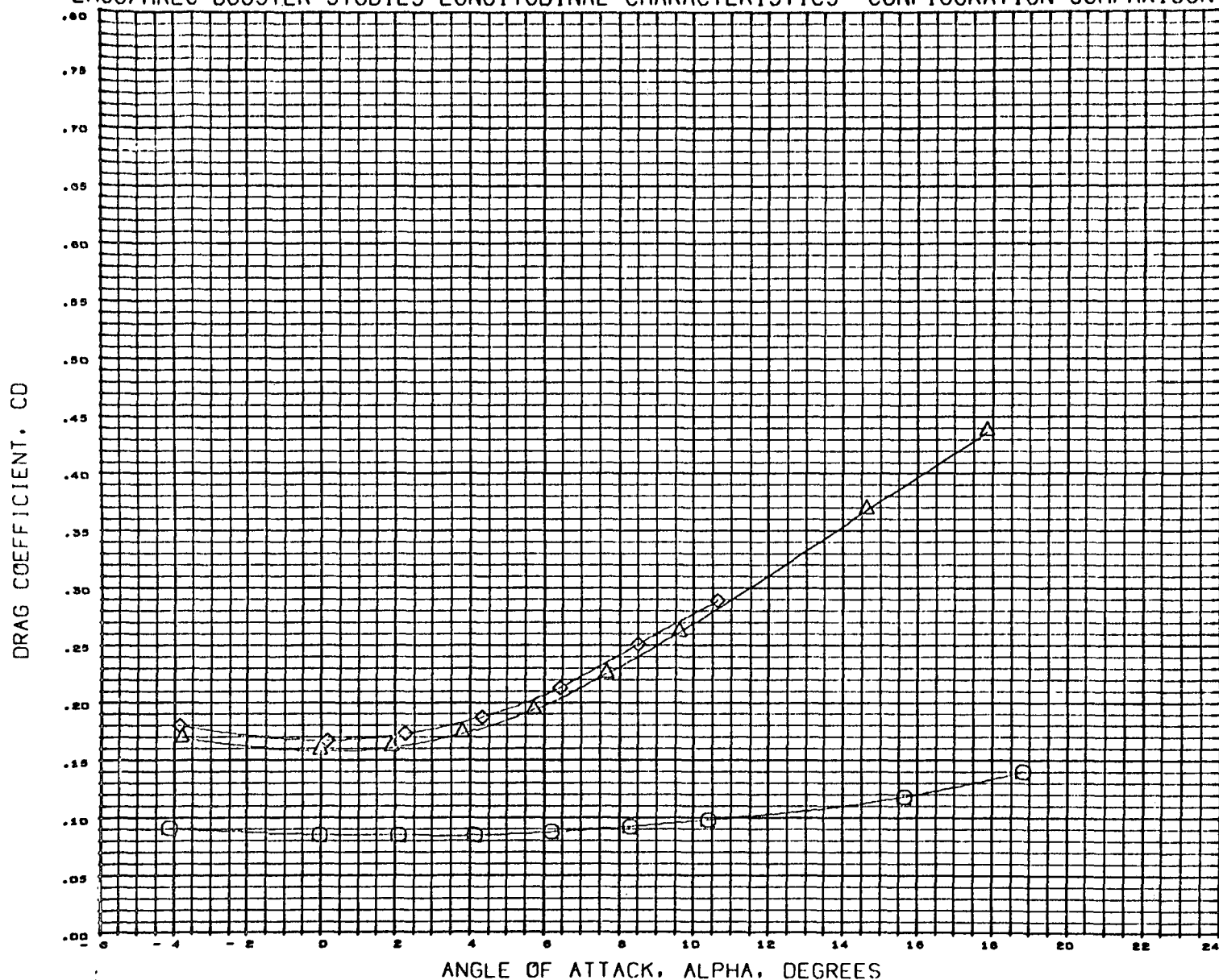
DRAG COEFFICIENT, CD



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION	
(RN3009)	NBRDC-3210,M8FC/LMSC BOOSTER B1	1.000	0.000			SREF	1.3350 30.FT.
(RN3005)	NBRDC-3210,M8FC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF	3.4530 FEET
(RN3001)	NBRDC-3210,M8FC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	SREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 1.001

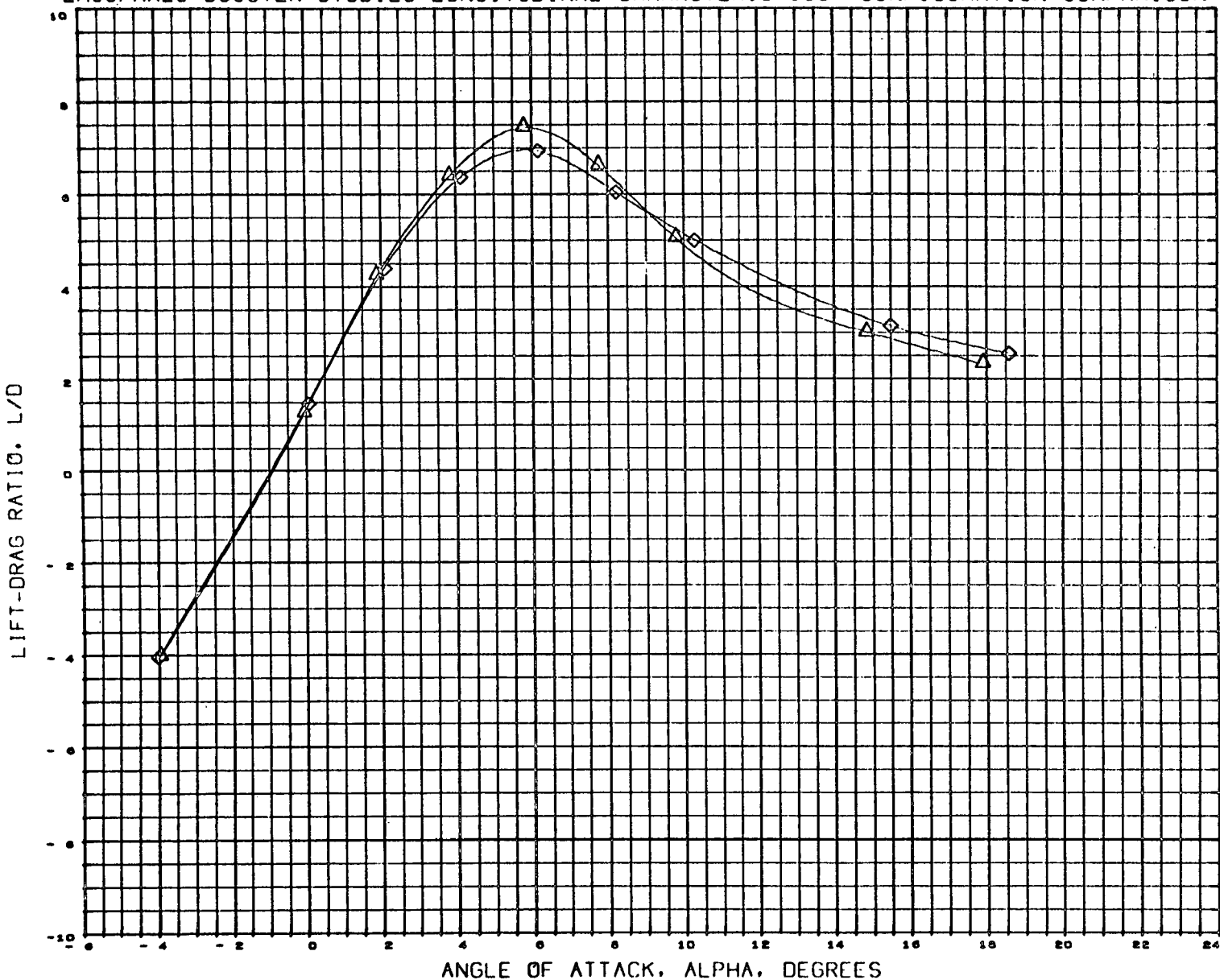
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION	
(RNS009)	NSRDC-3210,MSFC/LMSC BOOSTER B1					SREF	1.3550 SQ.FT.
(RNS005)	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF	3.4530 FEET
(RNS001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	BREF	3.4530 FEET
						XMRP	2.9050 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 1.126

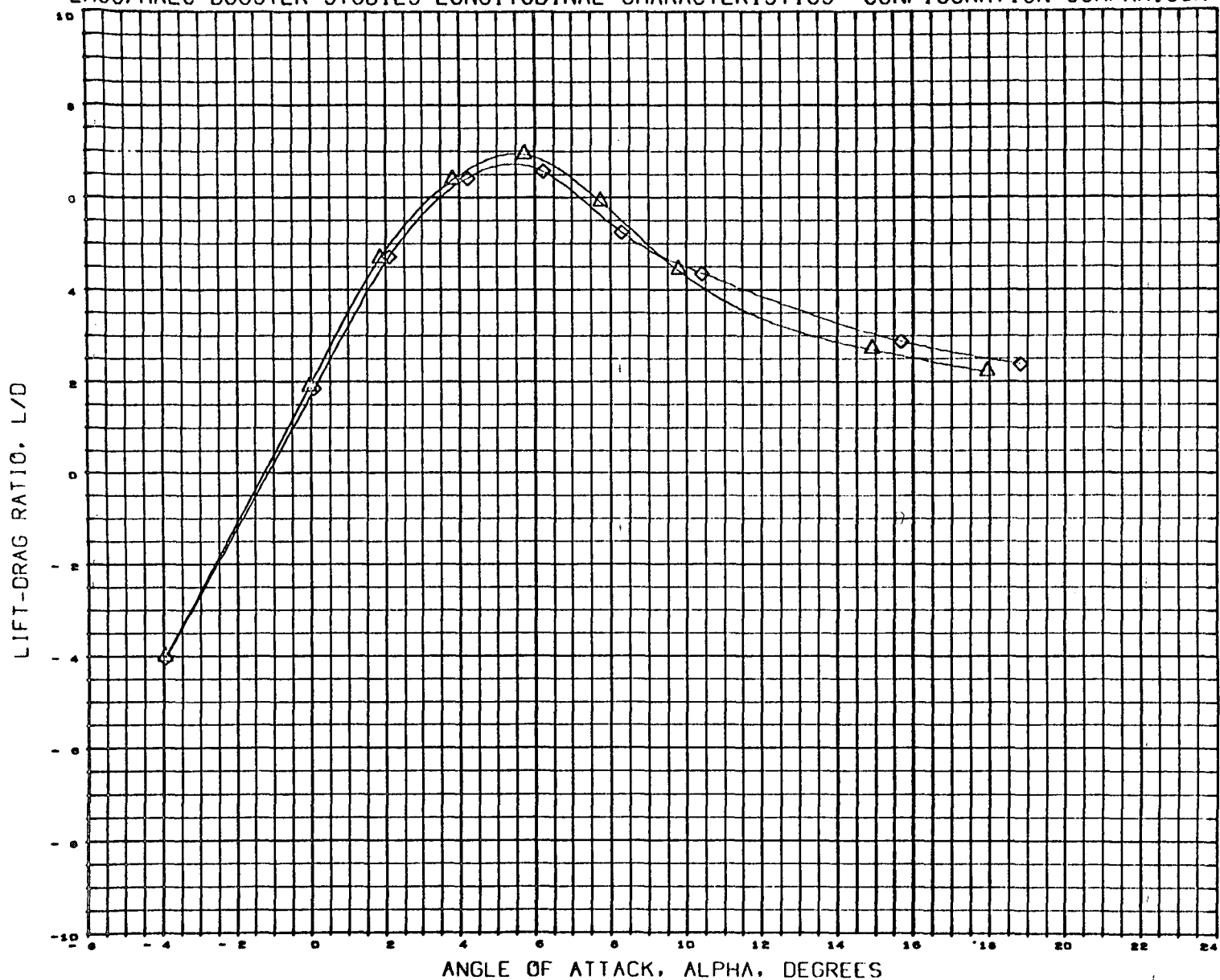
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INC1DW	CNDPOS	INC1DC	REFERENCE INFORMATION	
(RN3009)	DATA NOT AVAILABLE FOR ALL CONDITIONS					BREF	1.3550 SQ.FT.
(RN3005)	MSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF	3.4530 FEET
(RN3001)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	BREF	3.4530 FEET
						XMRP	2.5990 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0107 FEET
						SCALE	0.0150 SCALE

MACH 0.704

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



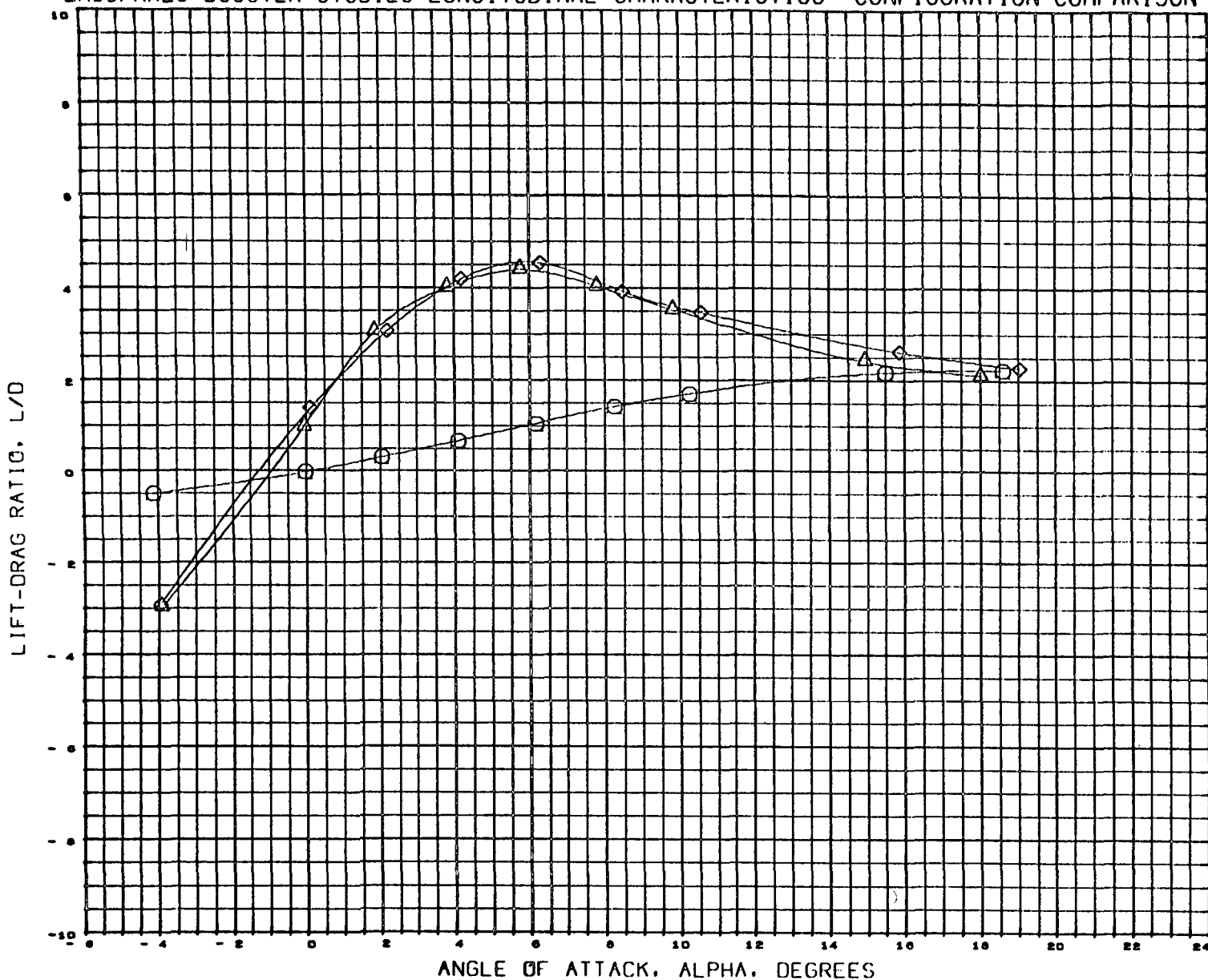
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(RN3009)	DATA NOT AVAILABLE FOR ALL CONDITIONS
(RN3005)	NSRDC-3210, MSFC/LMSC BOOSTER B1V1W1
(RN3001)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1

WINGPOS	INCIDW	CNOPOS	INCIDC
1.000	0.000		
1.000	0.000	1.000	3.000

REFERENCE INFORMATION		
BREF	1.3550	sq. ft.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0167	FEET
SCALE	0.0150	SCALE

MACH 0.800

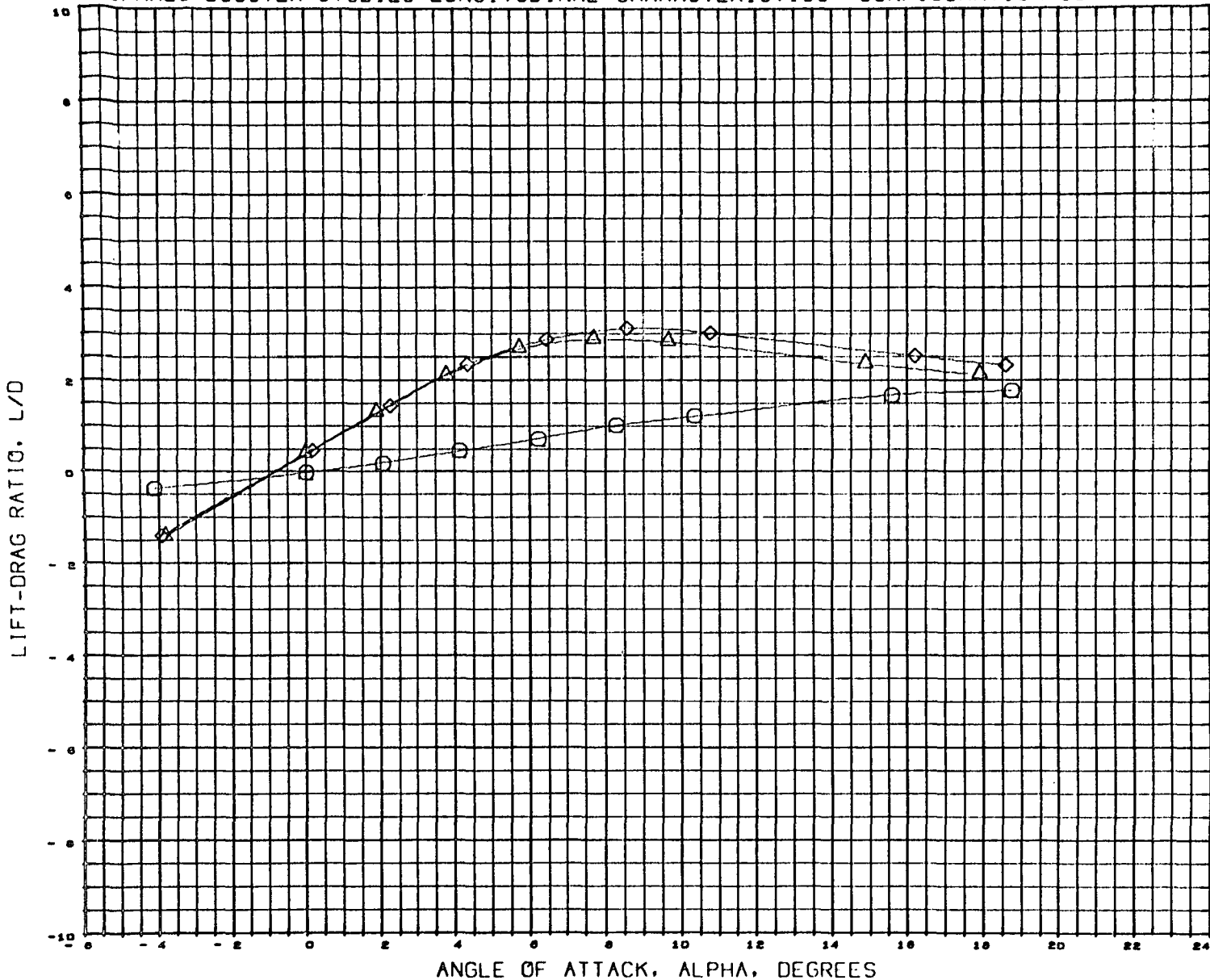
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION	
(RNS009)	NSRDC-3210,MSFC/LMSC BOOSTER B1					BREF	1.5990 SQ.FT.
(RNS009)	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF	3.4530 FEET
(RNS001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0107 FEET
						SCALE	0.0150 SCALE

MACH 0.905

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL
(RN3009)
(RN3005)
(RN3001)



CONFIGURATION DESCRIPTION

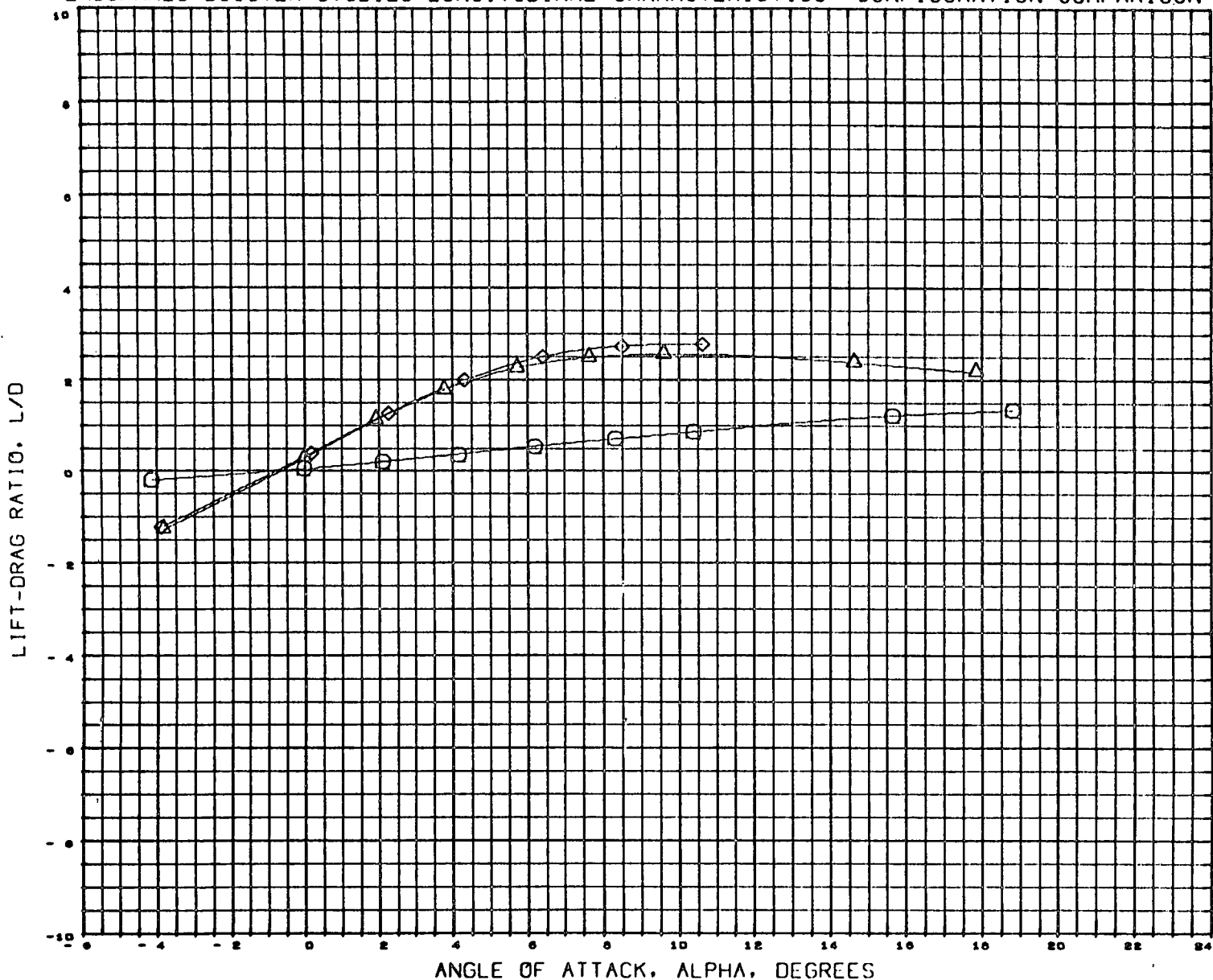
NSRDC-3210, MSFC/LMSC BOOSTER B1
NSRDC-3210, MSFC/LMSC BOOSTER B1V1W1
NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1

WNGPOS	INCIDW	CNDPOS	INCIDC
1.000	0.000		
1.000	0.000	1.000	3.000

REFERENCE INFORMATION		
SREF	1.3550	88. FT.
LREF	3.4330	FEET
BREF	3.4330	FEET
XMRP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0167	FEET
SCALE	0.0150	SCALE

MACH 1.001

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

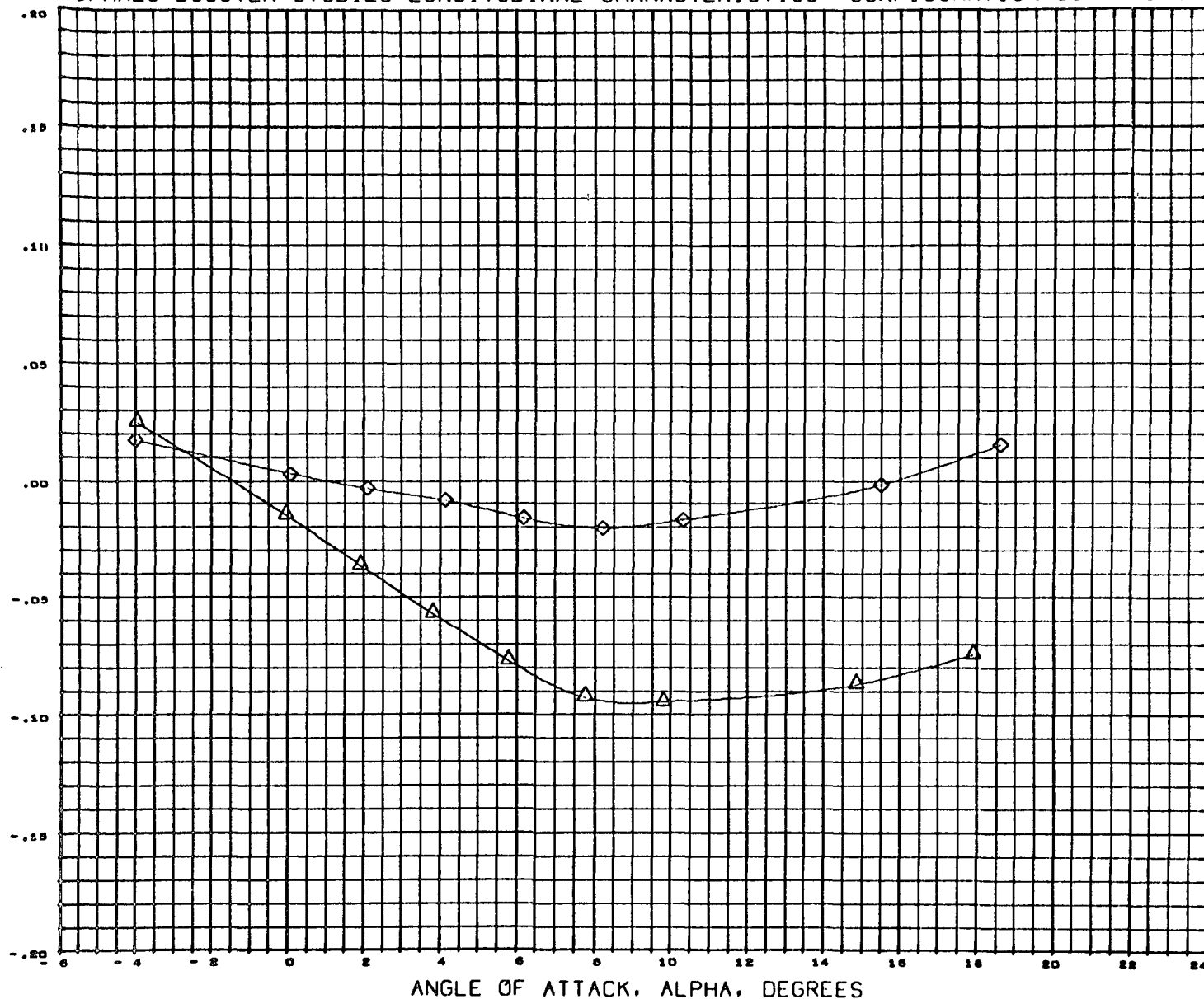


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION	
(RN3009)	NSRDC-3210,MSFC/LMSC BOOSTER B1					BREF	1.3550 SQ.FT.
(RN3005)	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF	3.4530 FEET
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 1.126

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

PITCHING MOMENT COEFFICIENT, C_{LM}



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(RNS009)	○	DATA NOT AVAILABLE FOR ALL CONDITIONS
(RNS005)	△	NSRDC-3210, MSFC/LMSC BOOSTER B1V1W1
(RNS001)	◇	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1

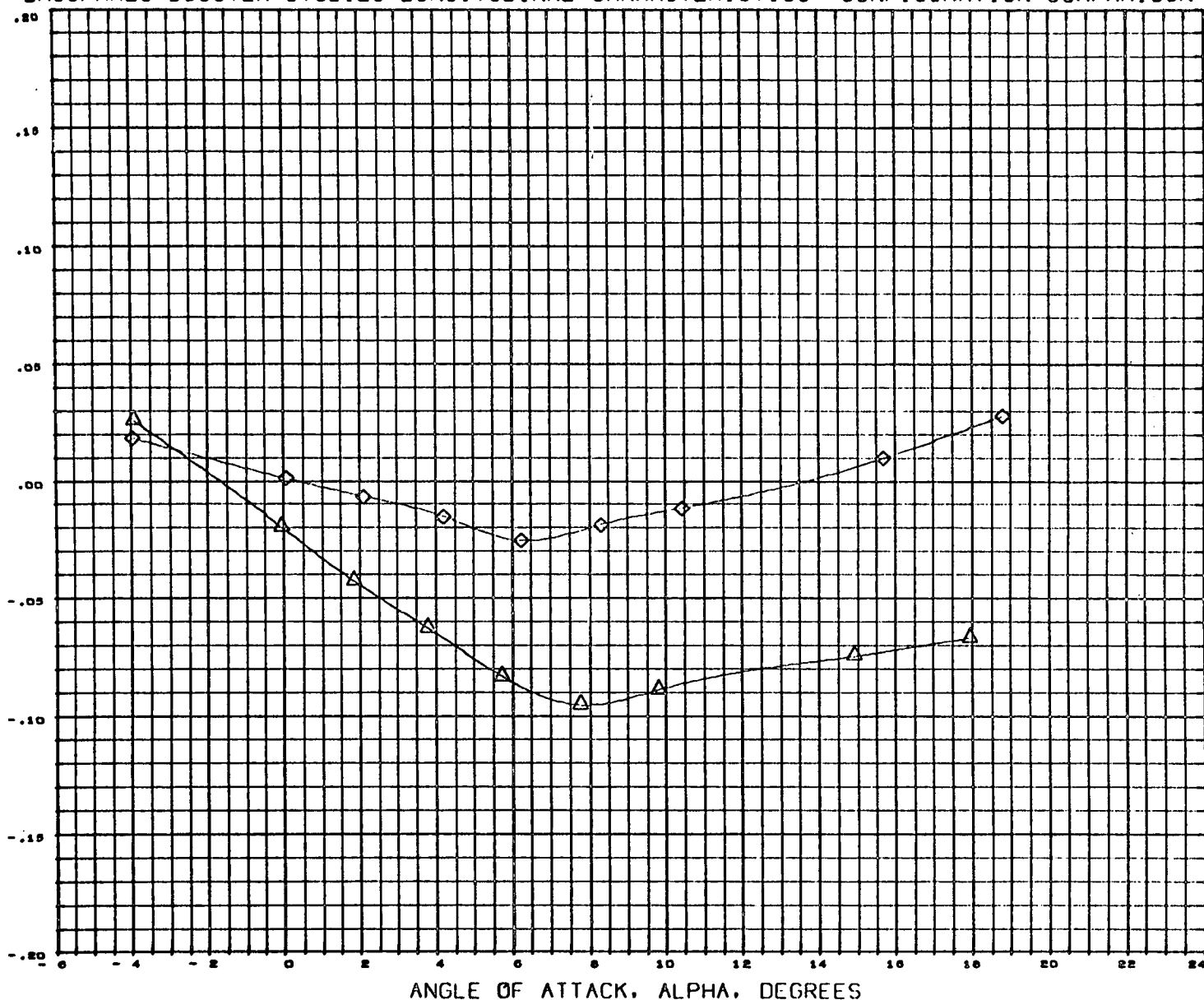
WNGPOS	INCIDW	CNDPOS	INCIDC
1.000	0.000		
1.000	0.000	1.000	3.000

REFERENCE INFORMATION		
BREF	1.3550	80. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0167	FEET
SCALE	0.0150	SCALE

MACH 0.704

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

PITCHING MOMENT COEFFICIENT, CLM

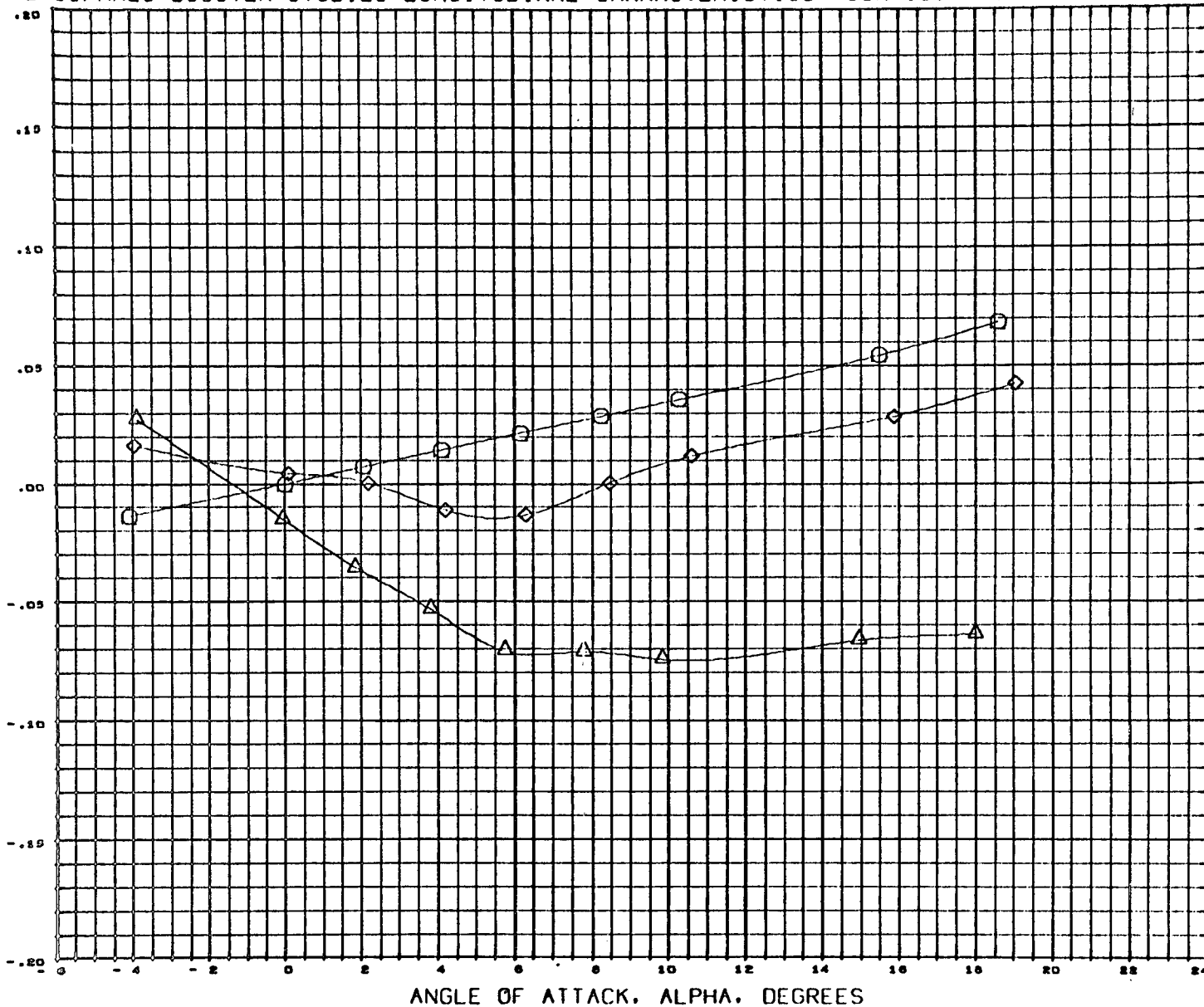


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION	
(RN3069)	DATA NOT AVAILABLE FOR ALL CONDITIONS					SREF	1.3550 88.FT.
(RN3065)	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF	3.4530 FEET
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	BREF	3.4530 FEET
						XMRP	2.5050 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.600

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

PITCHING MOMENT COEFFICIENT, CLM

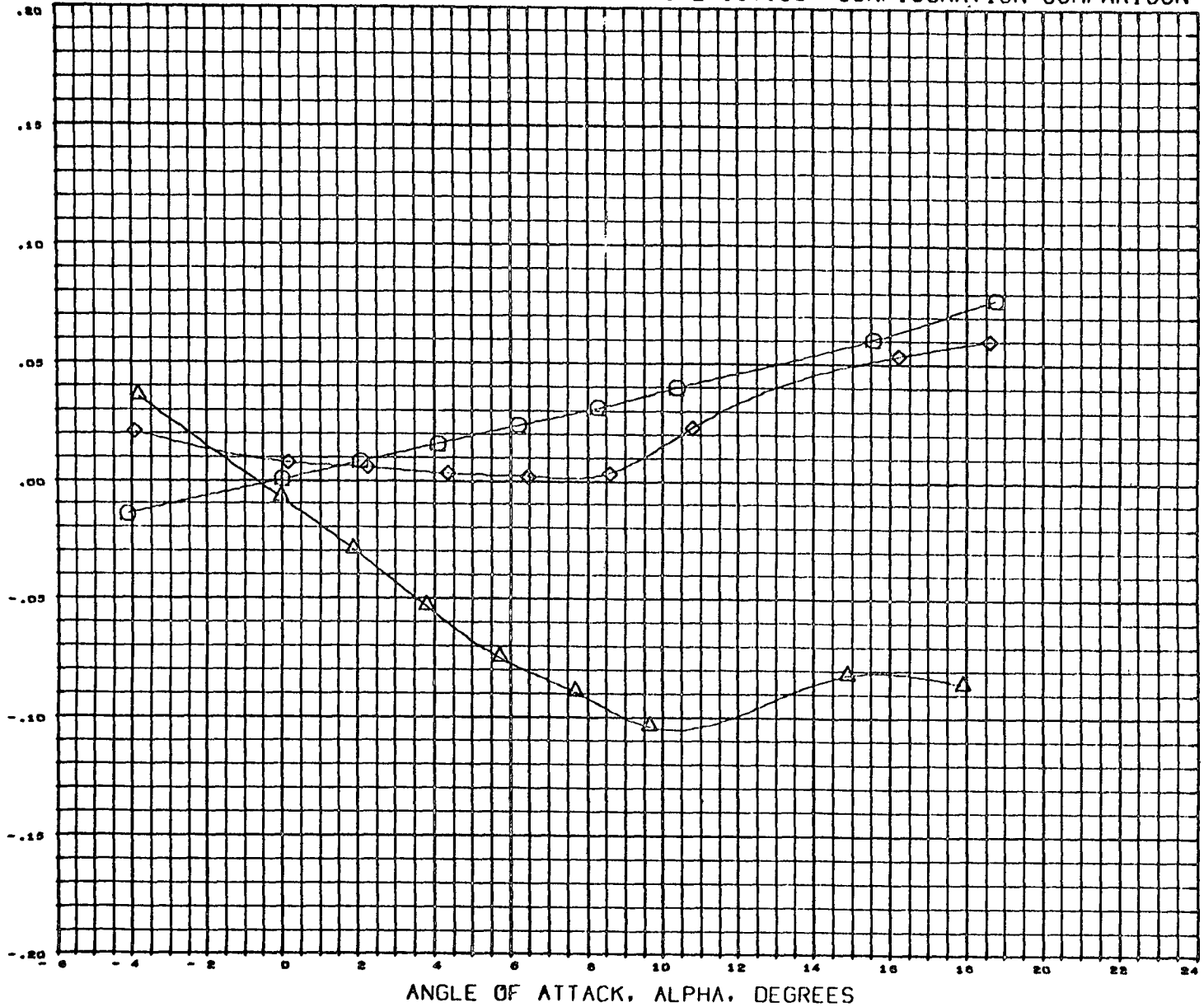


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION	
(R3000)	MSRDC-3210,MSFC/LMSC BOOSTER B1					SREF	1.3550 80.FT.
(R3005)	MSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF	3.4530 FEET
(R3001)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.905

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

PITCHING MOMENT COEFFICIENT, CLM

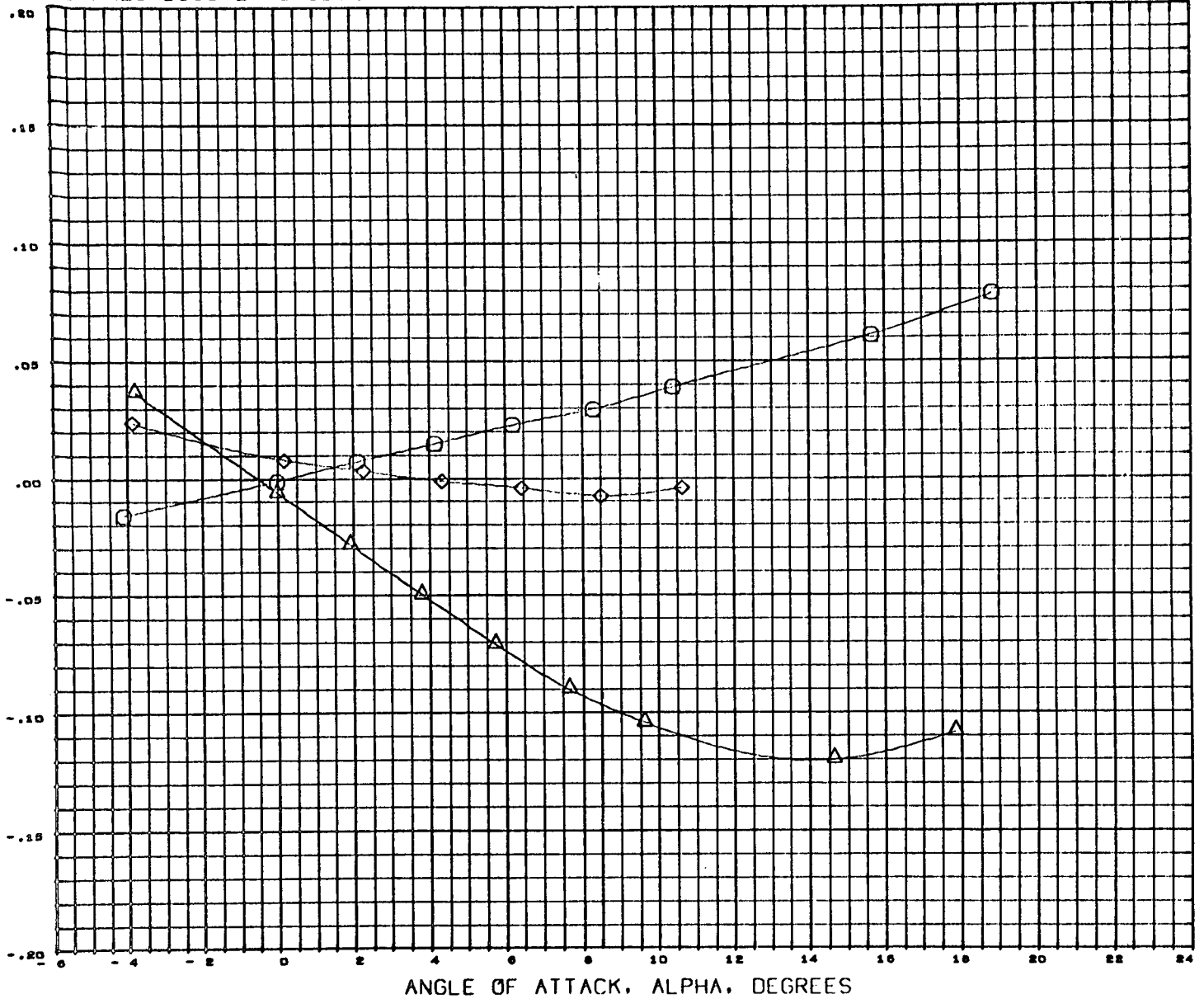


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION	
(RN3060)	NSRDC-3210,MSFC/LMSC BOOSTER B1					SREF	1.3550 SQ.FT.
(RN3065)	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF	3.4530 FEET
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	SREF	3.4530 FEET
						XMRP	2.5050 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 1.001

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

PITCHING MOMENT COEFFICIENT, C_{LM}

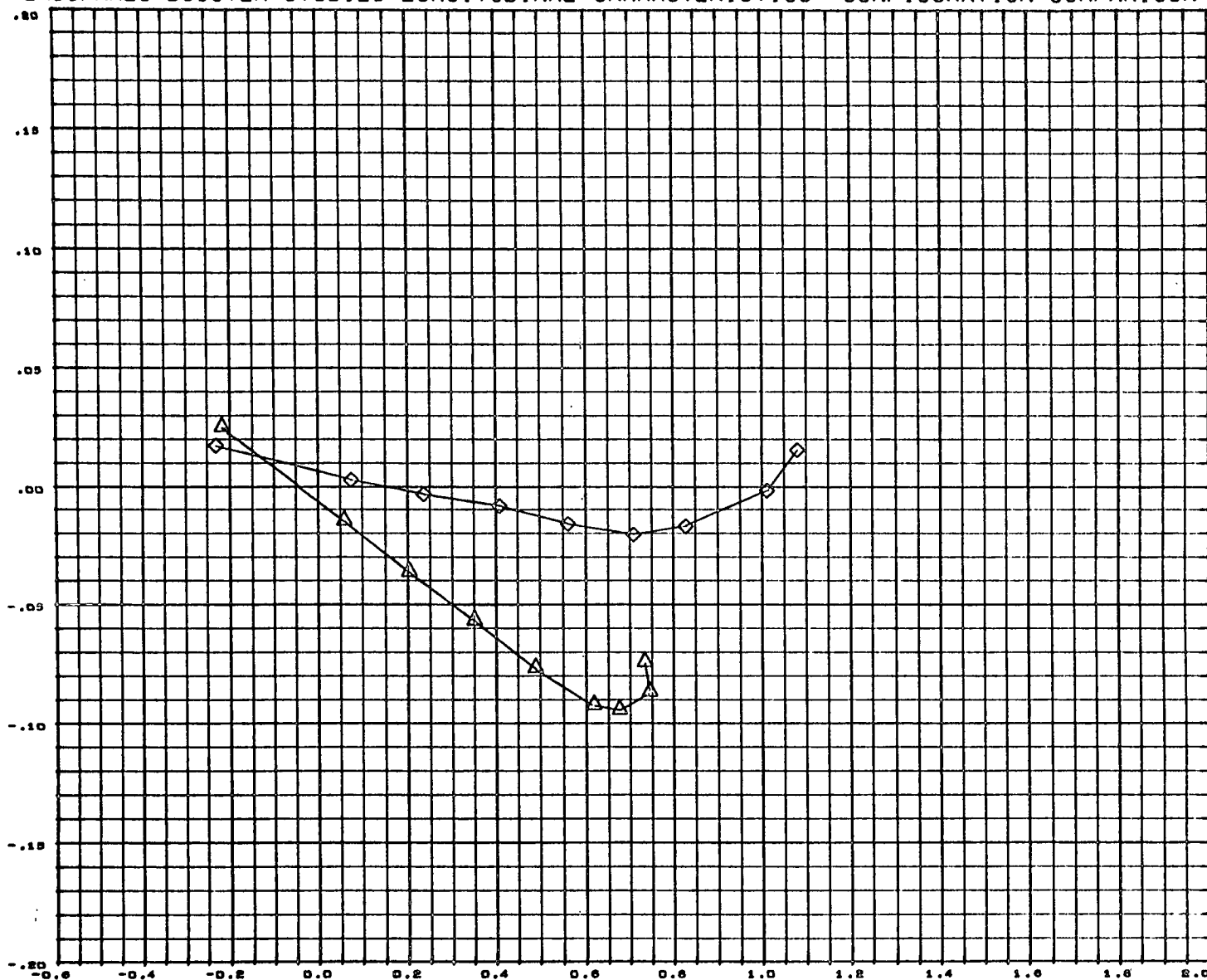


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION	
(RNS009)	MSRDC-3210,MSFC/LMSC BOOSTER B1					SREF	1.3550 SQ.FT.
(RNS005)	MSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF	3.4530 FEET
(RNS001)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 1.120

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

PITCHING MOMENT COEFFICIENT, CLM



LIFT COEFFICIENT, CL

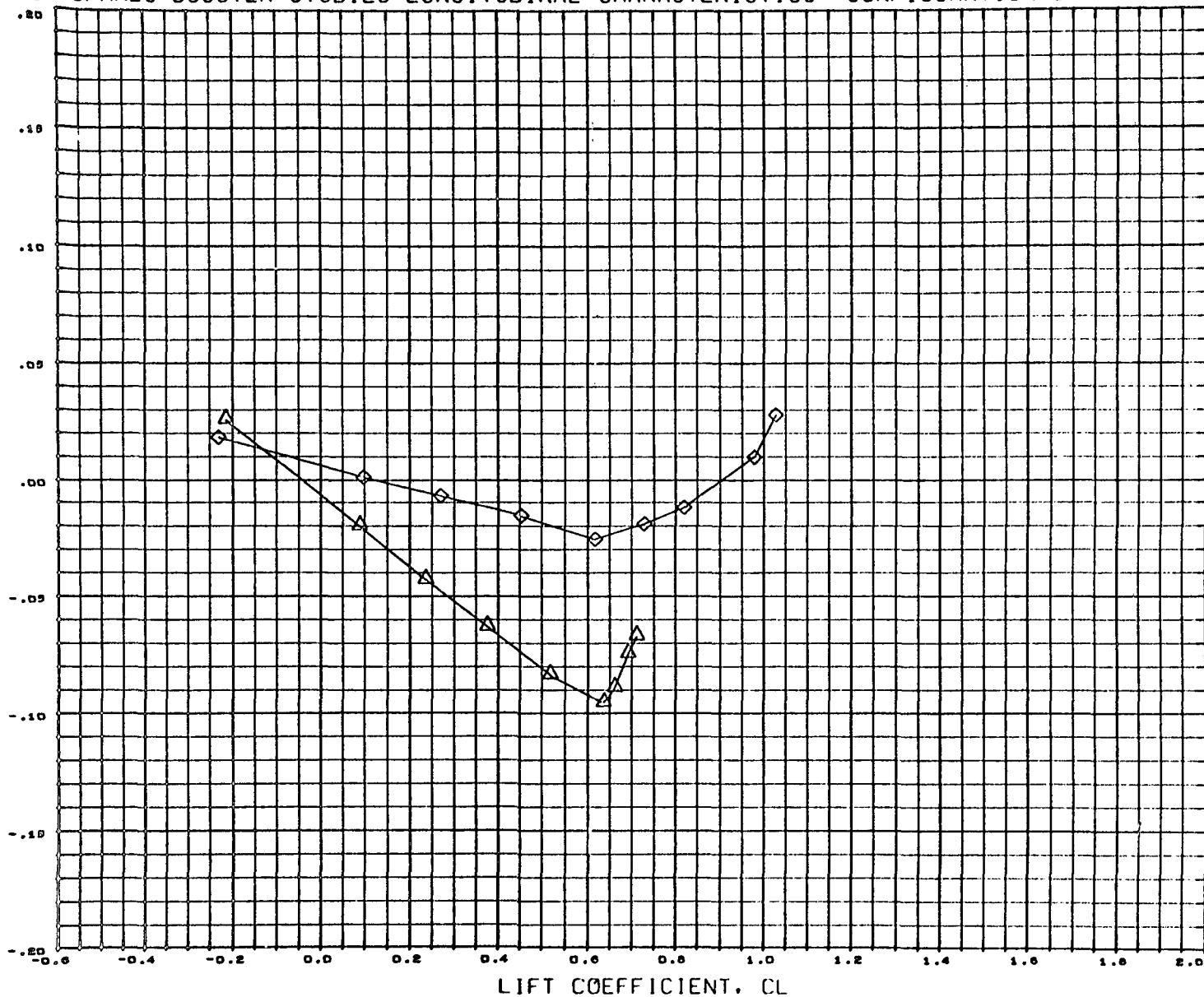
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(RNS089)	DATA NOT AVAILABLE FOR ALL CONDITIONS
(RNS085)	NSRDC-3210, MSFC/LMSC BOOSTER B1V1W1
(RNS001)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1

WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION	
1.000	0.000			SREF	1.3550 SQ. FT.
1.000	0.000	1.000	3.000	LREF	3.4530 FEET
				BREF	3.4530 FEET
				XMRP	2.9950 FEET
				YMRP	0.0000 FEET
				ZMRP	0.0167 FEET
				SCALE	0.0150 SCALE

MACH 0.704

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

PITCHING MOMENT COEFFICIENT, CLM



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(RM3000)	○	DATA NOT AVAILABLE FOR ALL CONDITIONS
(RM3003)	△	NSRDC-3210, MSFC/LMSC BOOSTER B1V1W1
(RM3001)	◇	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1

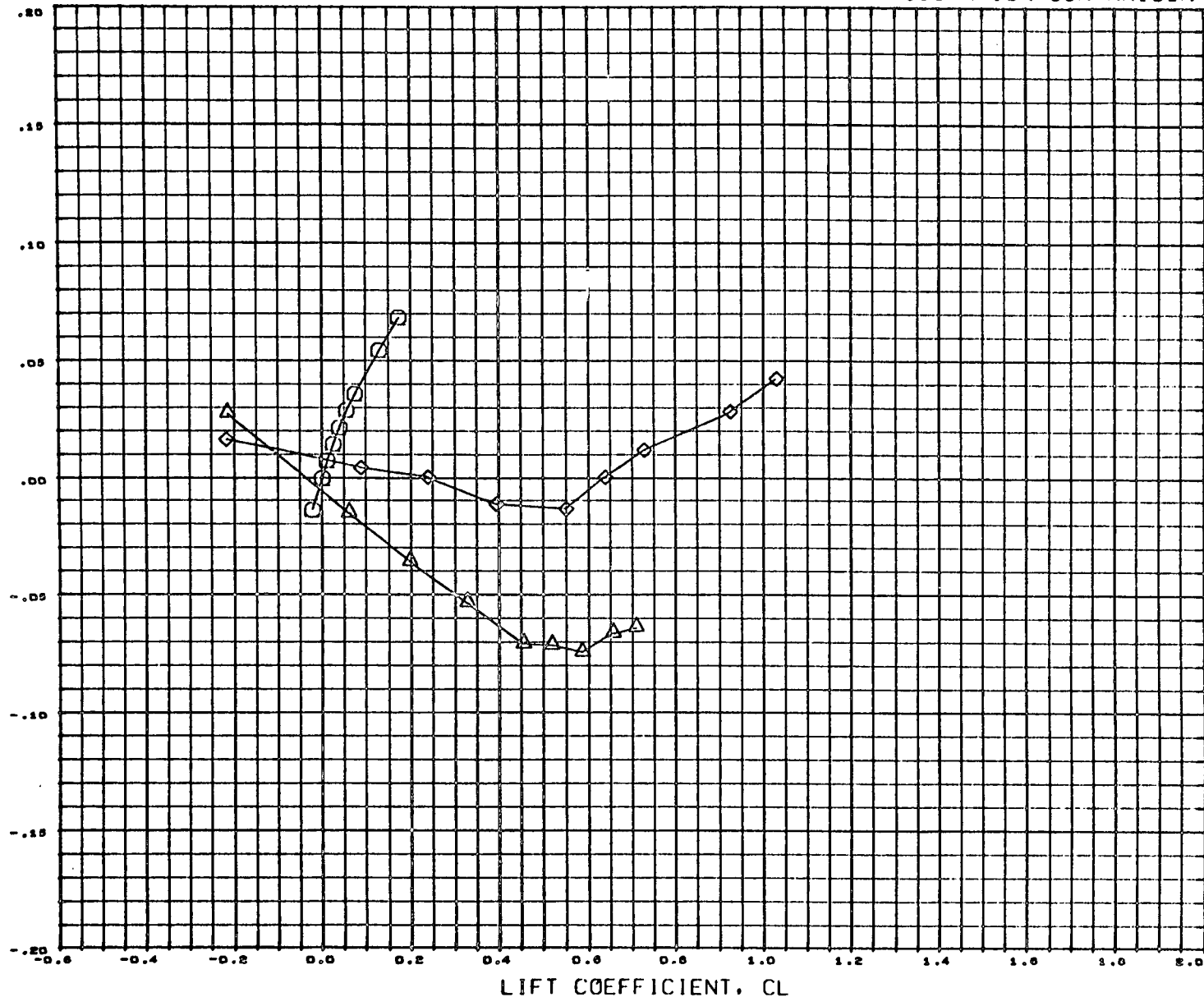
WNGPOS	INC1DW	CNDPOS	INC1DC
1.000	0.000		
1.000	0.000	1.000	3.000

REFERENCE INFORMATION		
SREF	1.3550	89. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0167	FEET
SCALE	0.0150	SCALE

MACH 0.800

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

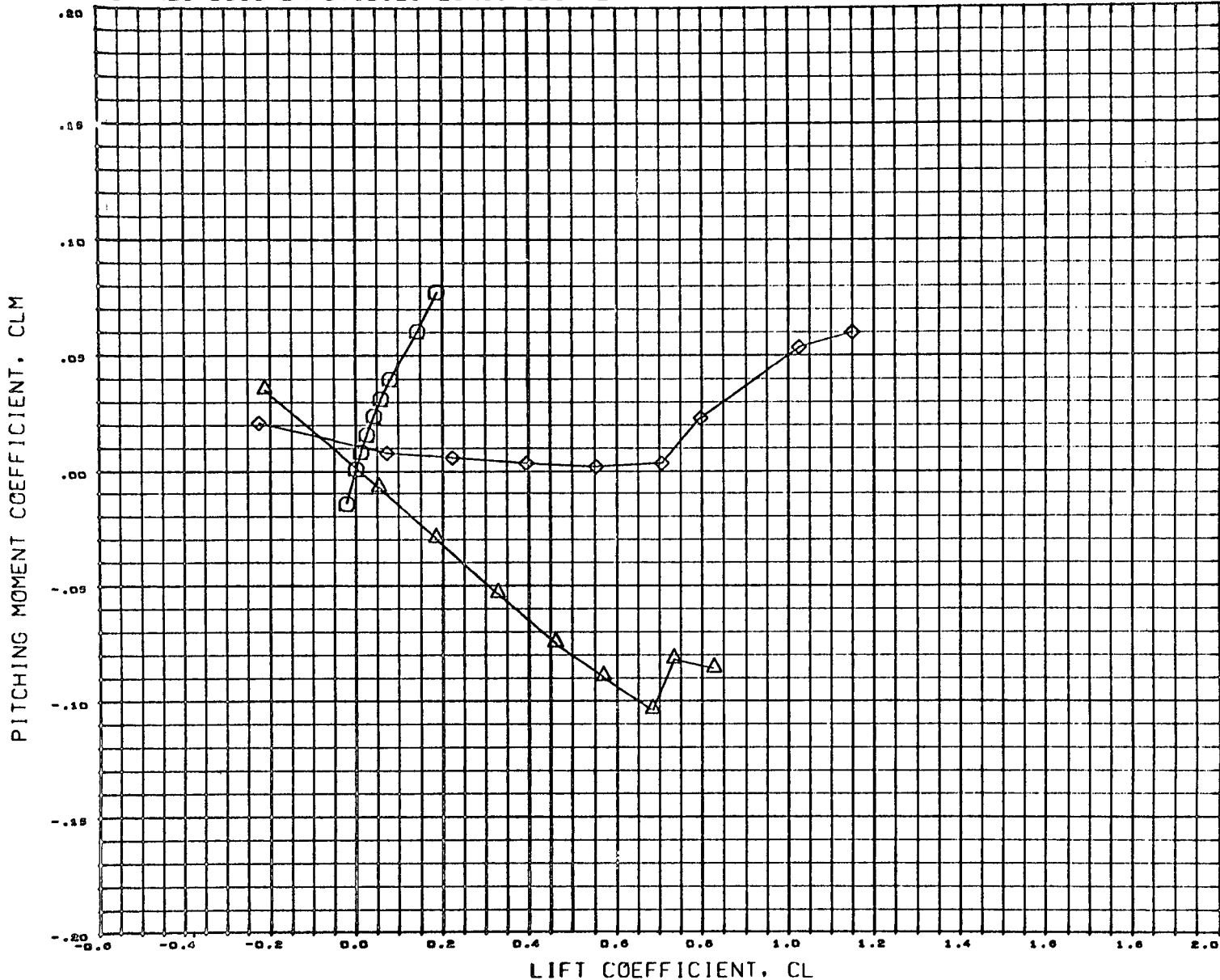
PITCHING MOMENT COEFFICIENT, CLM



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INC1DW	CNDPOS	INC1DC	REFERENCE INFORMATION	
(RN3009)	NSRDC-3210,MSFC/LMSC BOOSTER B1	1.000	0.000			SREF	1.3550 30.FT.
(RN3005)	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF	3.4530 FEET
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	SREF	3.4530 FEET
						XMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.905

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

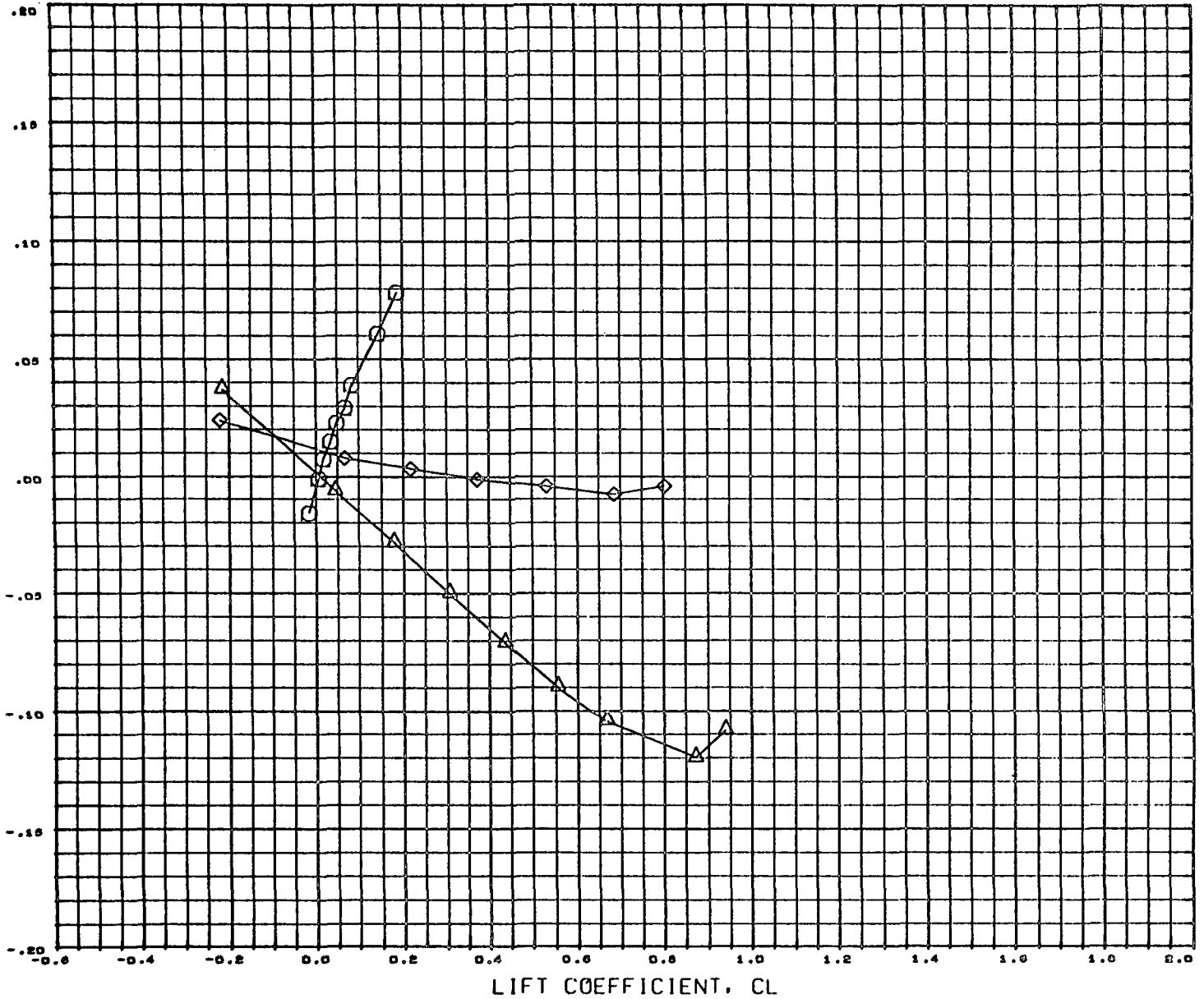


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION	
(R3000)	NSRDC-3210, MSFC/LMSC BOOSTER B1	1.000	0.000			SREF	1.3550 SQ. FT.
(R3009)	NSRDC-3210, MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF	3.4530 FEET
(R3001)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	BREF	3.4530 FEET
						XMRP	2.5990 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 1.001

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

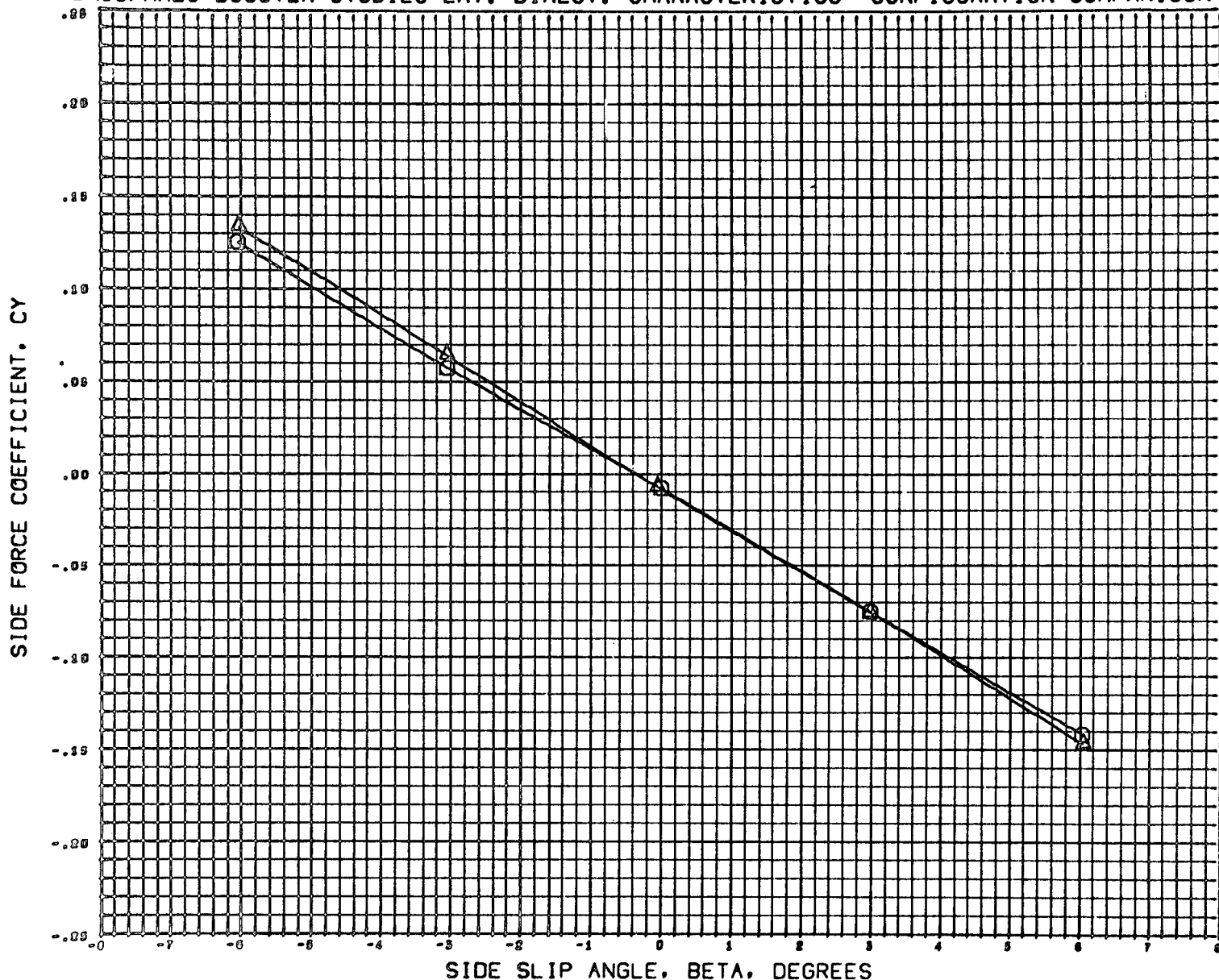
PITCHING MOMENT COEFFICIENT, CLM




DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION	
(RN3009)	NSRDC-3210,MSFC/LMSC BOOSTER B1					BREF	1.3950 SQ.FT.
(RN3005)	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			LREF	3.4530 FEET
(RN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	BREF	3.4530 FEET
						XMRP	2.5050 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 1.120

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL
(RNS000) 
(RNS002)

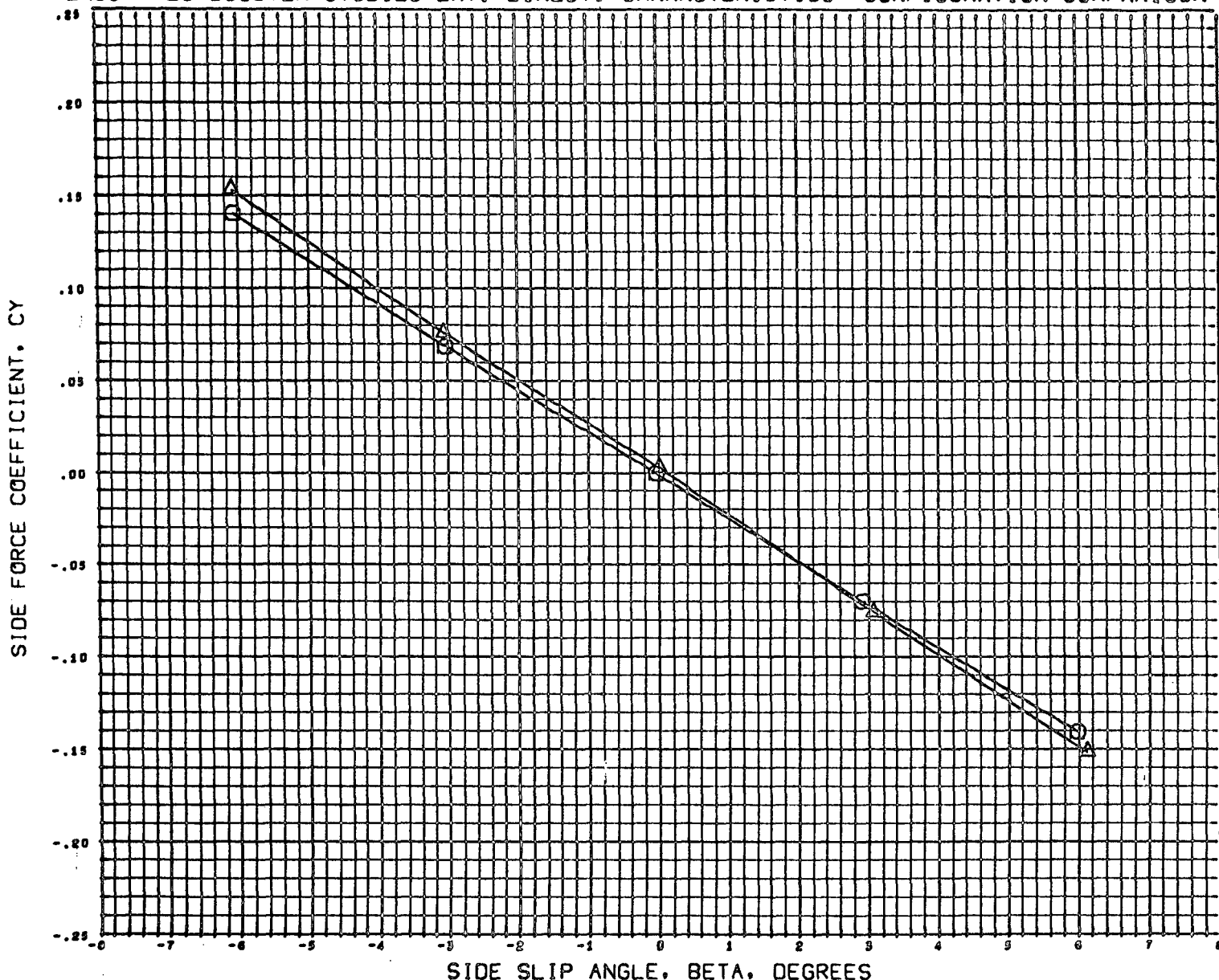
CONFIGURATION DESCRIPTION
NSRDC-9210,MSFC/LMSC BOOSTER B1V1W1
RDRDC-9210,MSFC/LMSC BOOSTER B1C2F2W1V1

WNGPOS	INCIDW	CNDPOS	INCIDC
1.000	0.000	1.000	3.000
1.000	0.000	1.000	3.000

REFERENCE INFORMATION		
SREF	1.3350	SQ.FT.
LREF	3.4330	FEET
BREF	3.4330	FEET
XMRP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0187	FEET
SCALE	0.0150	SCALE

MACH 0.000

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL
(RN3066) Q
(RN3002) A

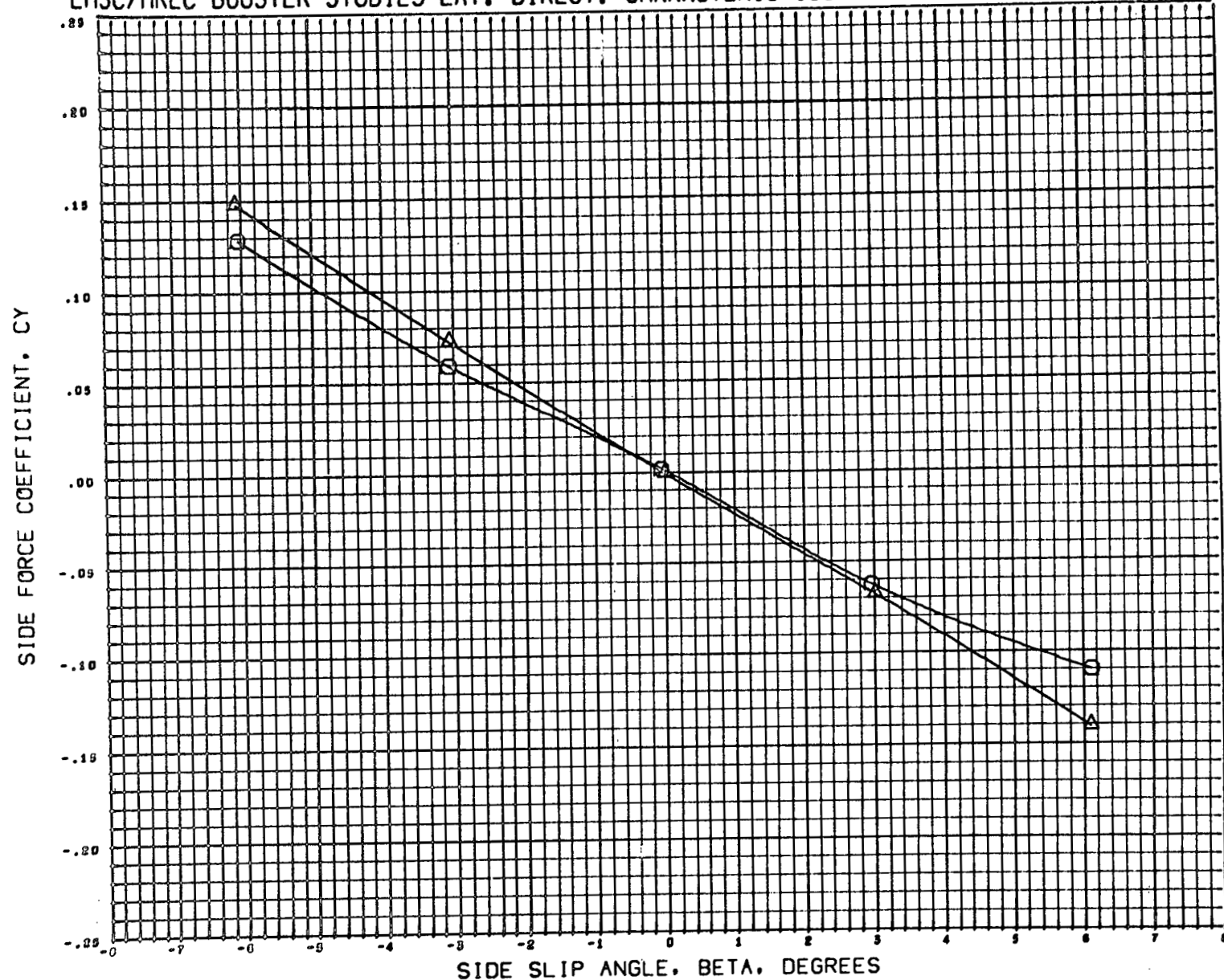
CONFIGURATION DESCRIPTION
MSRDC-3210,MSFC/LMSC BOOSTER B1V1W1
MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2H1V1

WNGPOS	INCIDW	CNDPOS	INCIDC
1.000	0.000		
1.000	0.000	1.000	3.000

REFERENCE INFORMATION		
SREF	1.3550	SG.FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0167	FEET
SCALE	0.0150	SCALE

MACH 0.797

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL
(RND066)
(RND002)

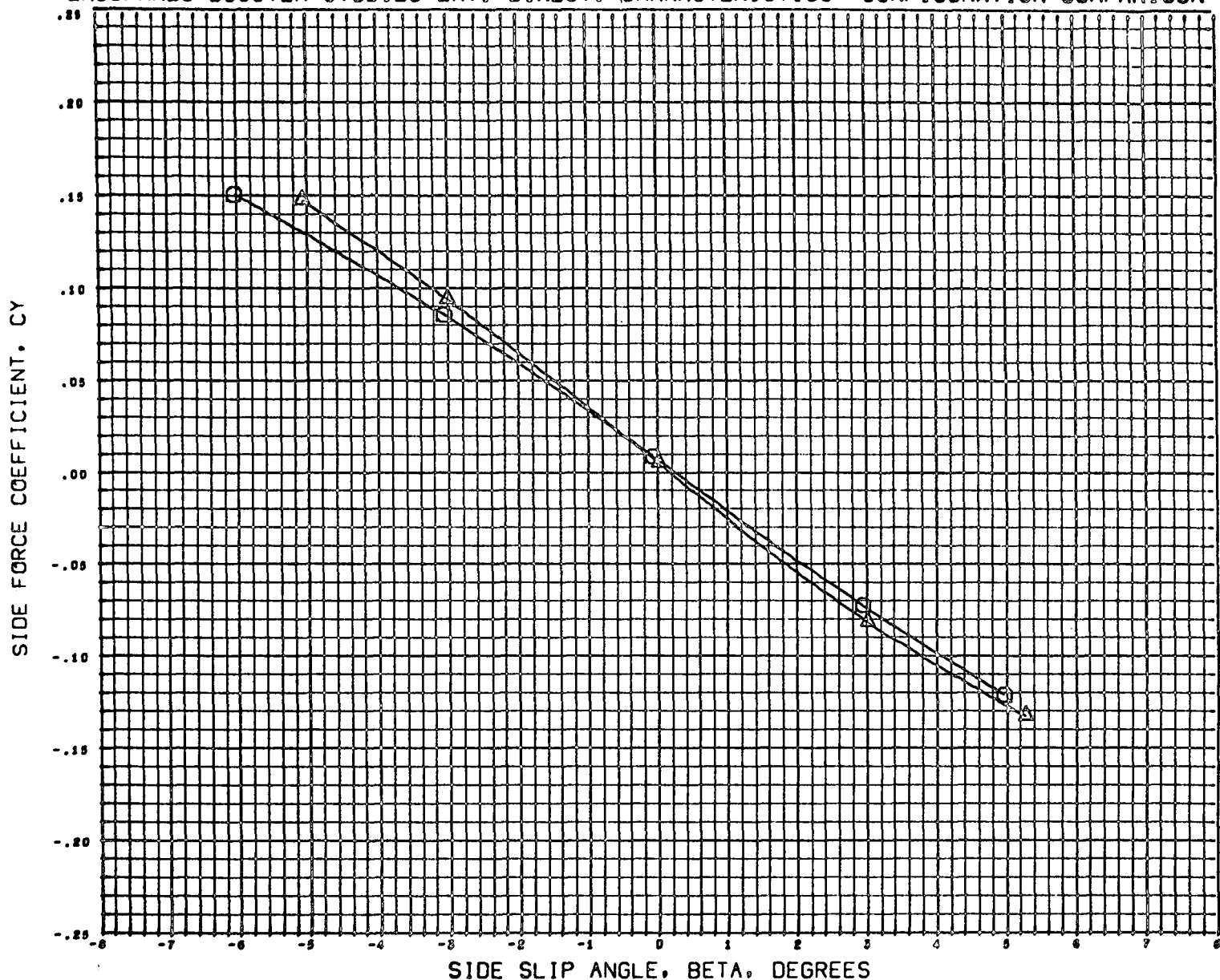
CONFIGURATION DESCRIPTION
NSRDC-3210, MSFC/LMSC BOOSTER B1V1W1
NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1


WNGPOS	INCIDW	CNDPOS	INCIDC
1.000	0.000	1.000	3.000
1.000	0.000	1.000	3.000

REFERENCE INFORMATION		
SREF	1.3550	SQ. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0187	FEET
SCALE	0.0150	SCALE

MACH 0.900

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL
(RNS066) 
(RNS002) 

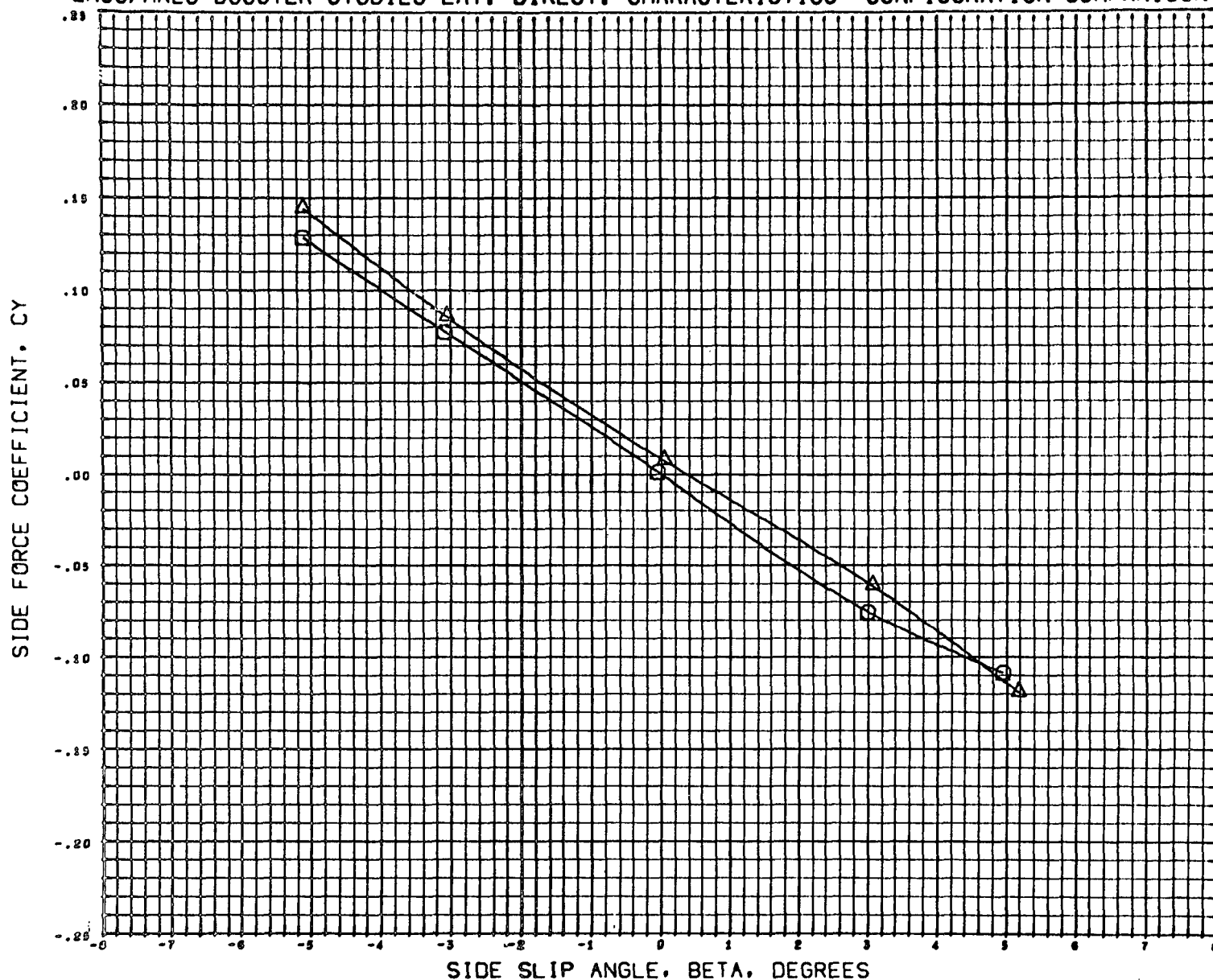
CONFIGURATION DESCRIPTION
NSRDC-3210, MSFC/LMSC BOOSTER B1V1W1
NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1

WNGPOS	INCIDW	CNDPOS	INCIDC
1.000	0.000		
1.000	0.000	1.000	3.000

REFERENCE INFORMATION		
OREF	1.3550	80. FT.
LREF	0.4930	FEET
BREF	0.4530	FEET
XMRP	2.9050	FEET
YMRP	0.0000	FEET
ZMRP	0.0187	FEET
SCALE	0.0150	SCALE

MACH 1.001

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON

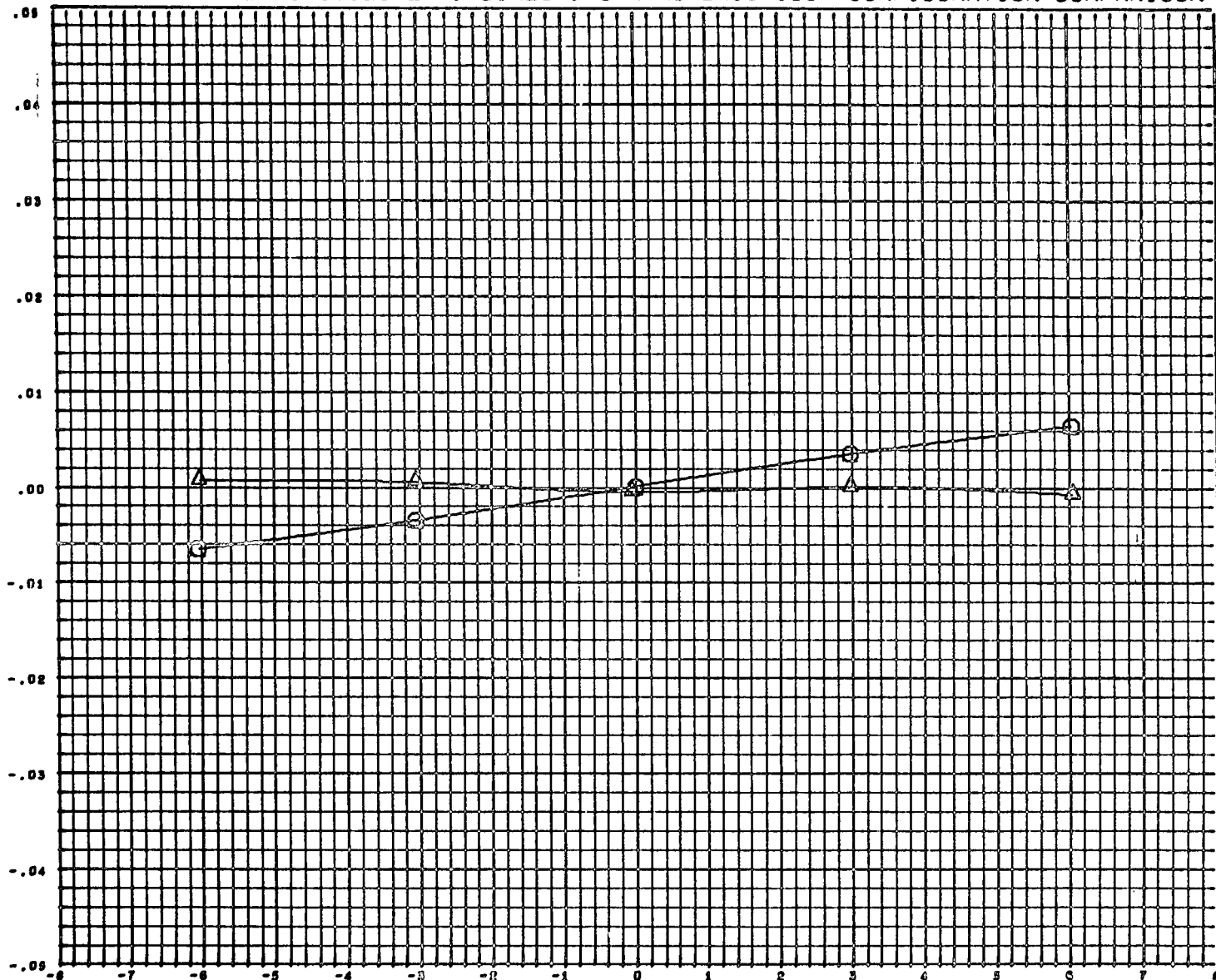


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION	
(RN3066)	MSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			SREF	1.3550 SQ.FT.
(RN3002)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	LREF	3.4530 FEET
						BREF	3.4530 FEET
						YMRP	2.5950 FEET
						ZMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

HACH 1.126

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON

YAWING MOMENT COEFFICIENT, CYN (BODY AXIS)



SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL
(RNS066) Q
(RNS002) A

CONFIGURATION DESCRIPTION
NBRDC-3210, N8FC/LMSC BOOSTER B1V1W1
NBRDC-3210, N8FC/LMSC BOOSTER B1C2F2H1V1

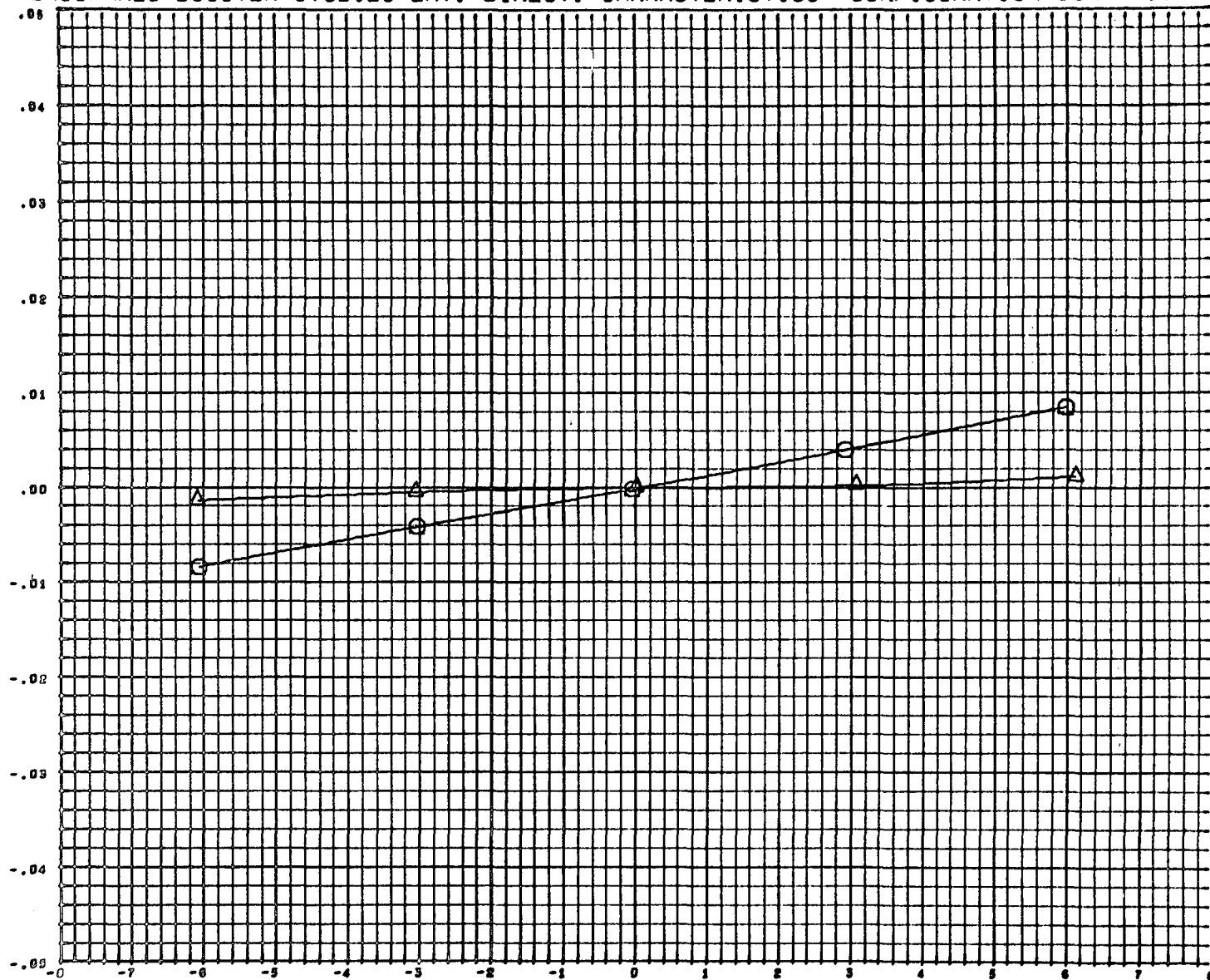
WNGPOS	INCIDW	CNDPOS	INCIDC
1.000	0.000		
1.000	0.000	1.000	3.000

REFERENCE INFORMATION		
SREF	1.3550	89.FT.
LREF	3.4950	FEET
DREF	3.4950	FEET
WARP	8.8090	FEET
VWAP	0.0000	FEET
ZWAP	0.0187	FEET
SCALE	0.0150	SCALE

MACH 0.698

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON

YAWING MOMENT COEFFICIENT, CYN (BODY AXIS)



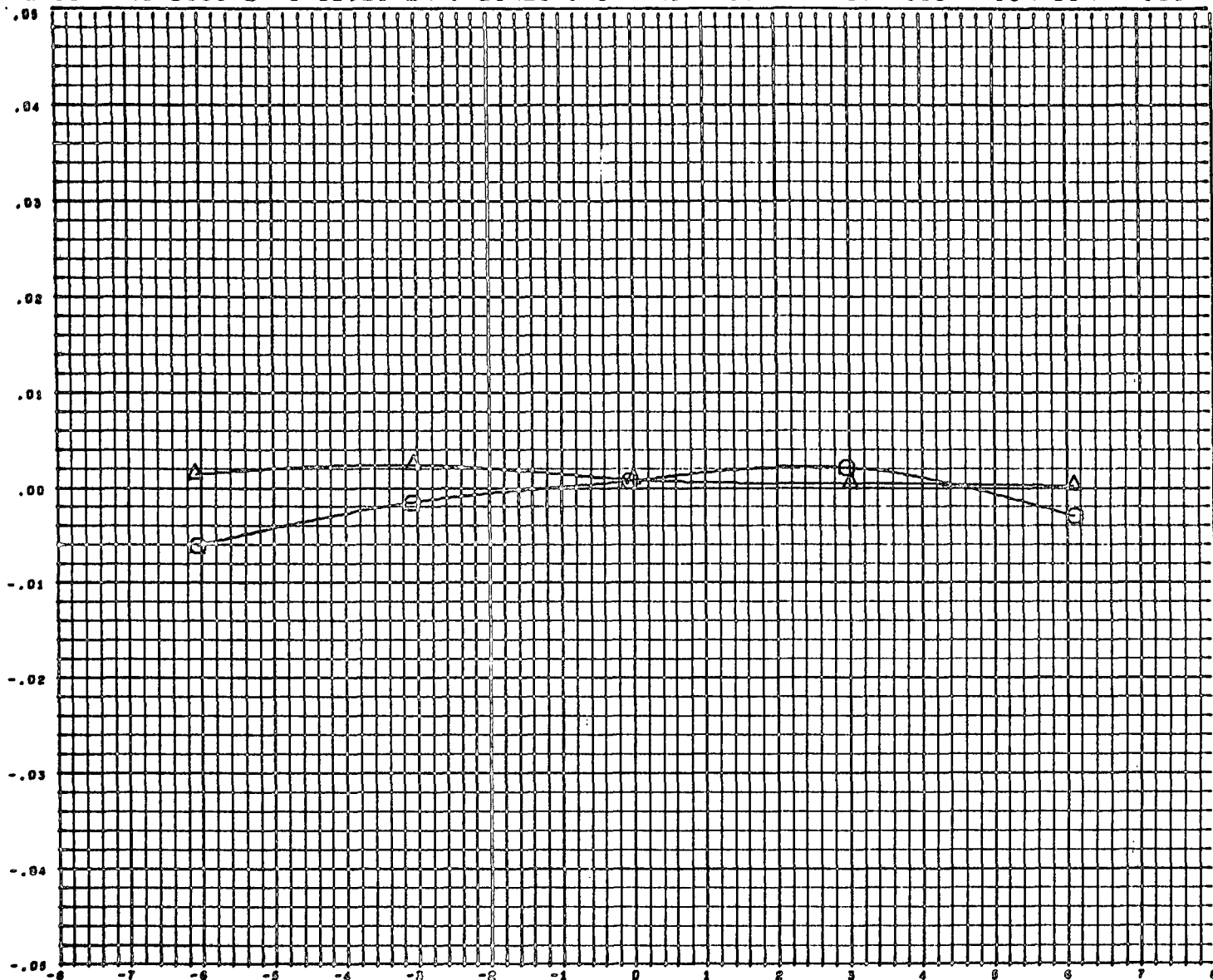
SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION	
(RM3000)	MSRDC-3210, MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			SREF	1.3550 80.FT.
(RM3002)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	LREF	3.4530 FEET
						BREF	3.4530 FEET
						XMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0107 FEET
						SCALE	0.0150 SCALE

RACH 0.797

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON

YAWING MOMENT COEFFICIENT, CYN (BODY AXIS)



DATA SET SYMBOL
(RNS006) Q
(RNS002) A

CONFIGURATION DESCRIPTION
NSRDC-3210, NSFC/LMSC BOOSTER B1V1W1
NSRDC-3210, NSFC/LMSC BOOSTER B1C2F2W1V1

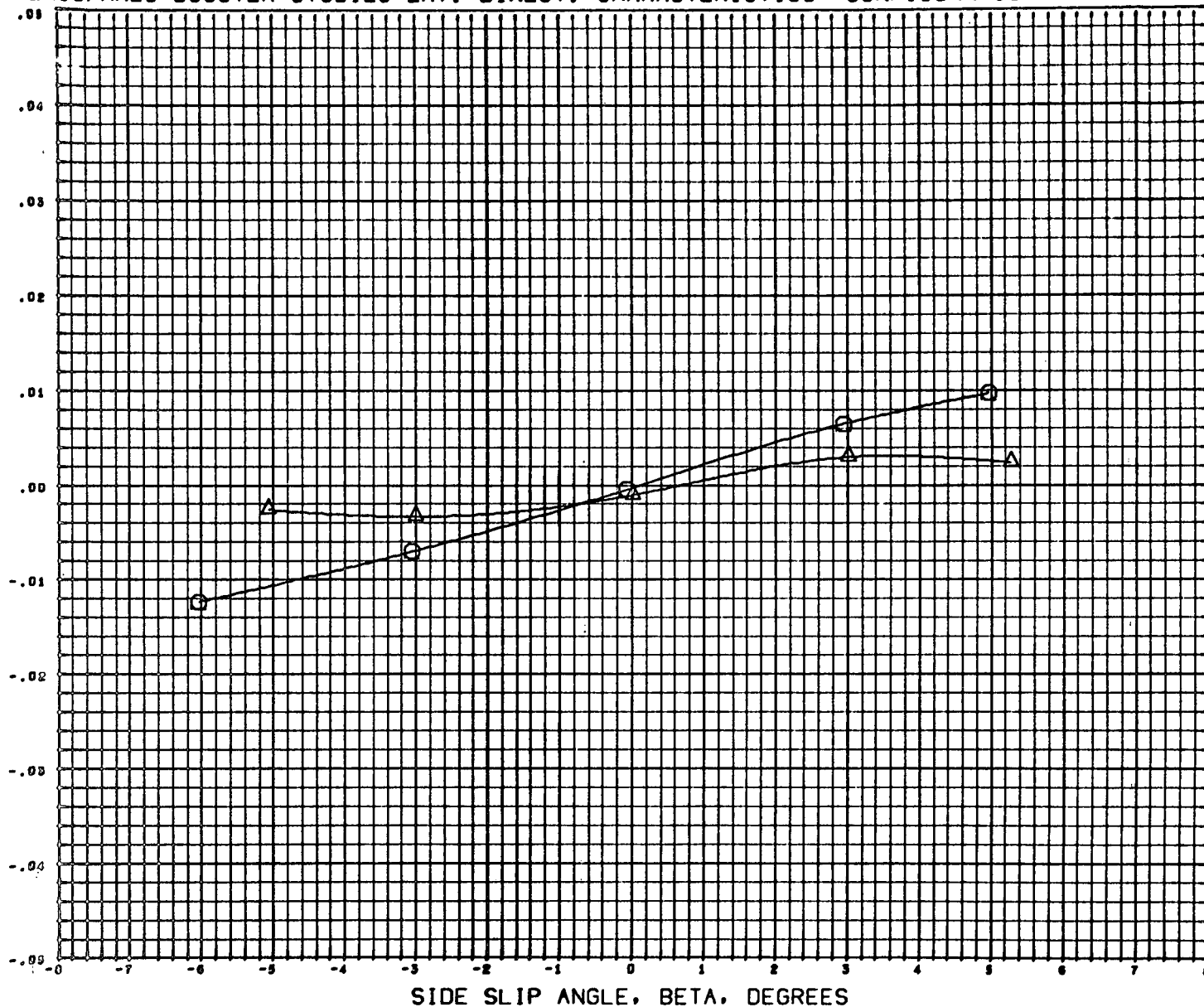
WNGPOS	INCIDW	CNDPOS	INCIDC
1.000	0.000		
1.000	0.000	1.000	3.000

REFERENCE INFORMATION		
SREF	1.3350	80. FT.
LREF	3.4330	FEET
BREF	3.4330	FEET
XRNP	2.9050	FEET
YRNP	0.0000	FEET
ZRNP	0.0167	FEET
SCALE	0.0150	SCALE

MACH 0.900

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON

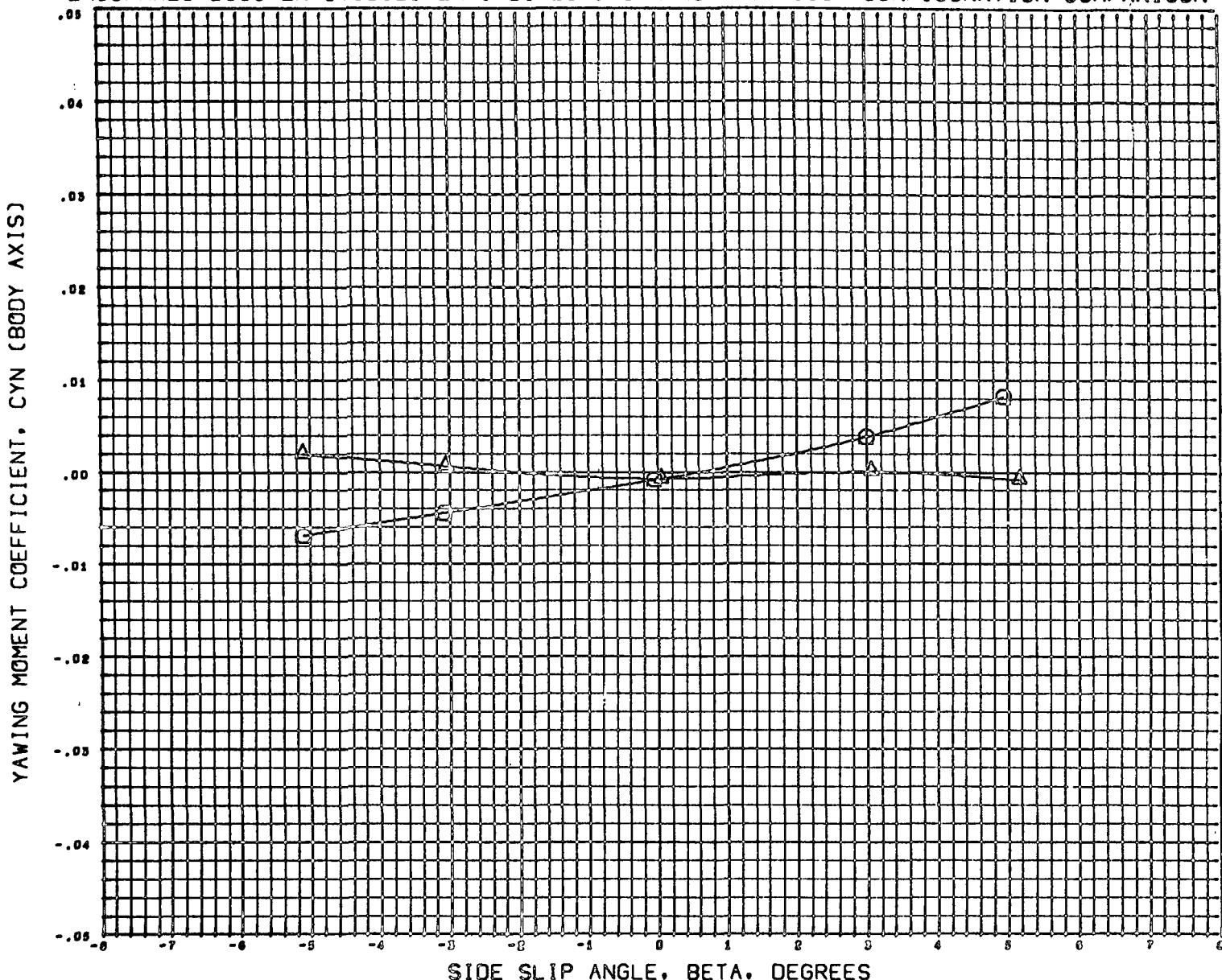
YAWING MOMENT COEFFICIENT, CYN (BODY AXIS)





DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION		
(RN3000)	MSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			SREF	1.3550	50.FT.
(RN3002)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	LREF	3.4530	FEET
						SREF	3.4530	FEET
						XMRP	2.3950	FEET
						YMRP	0.0000	FEET
						ZMRP	0.0167	FEET
						SCALE	0.0190	SCALE

MACH 1.001

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL
(RNS066) 
(RNS002) 

CONFIGURATION DESCRIPTION
MSRDC-3210,MSFC/LHSC BOOSTER BIV1W1
MSRDC-3210,MSFC/LHSC BOOSTER BIC2F8H1V1

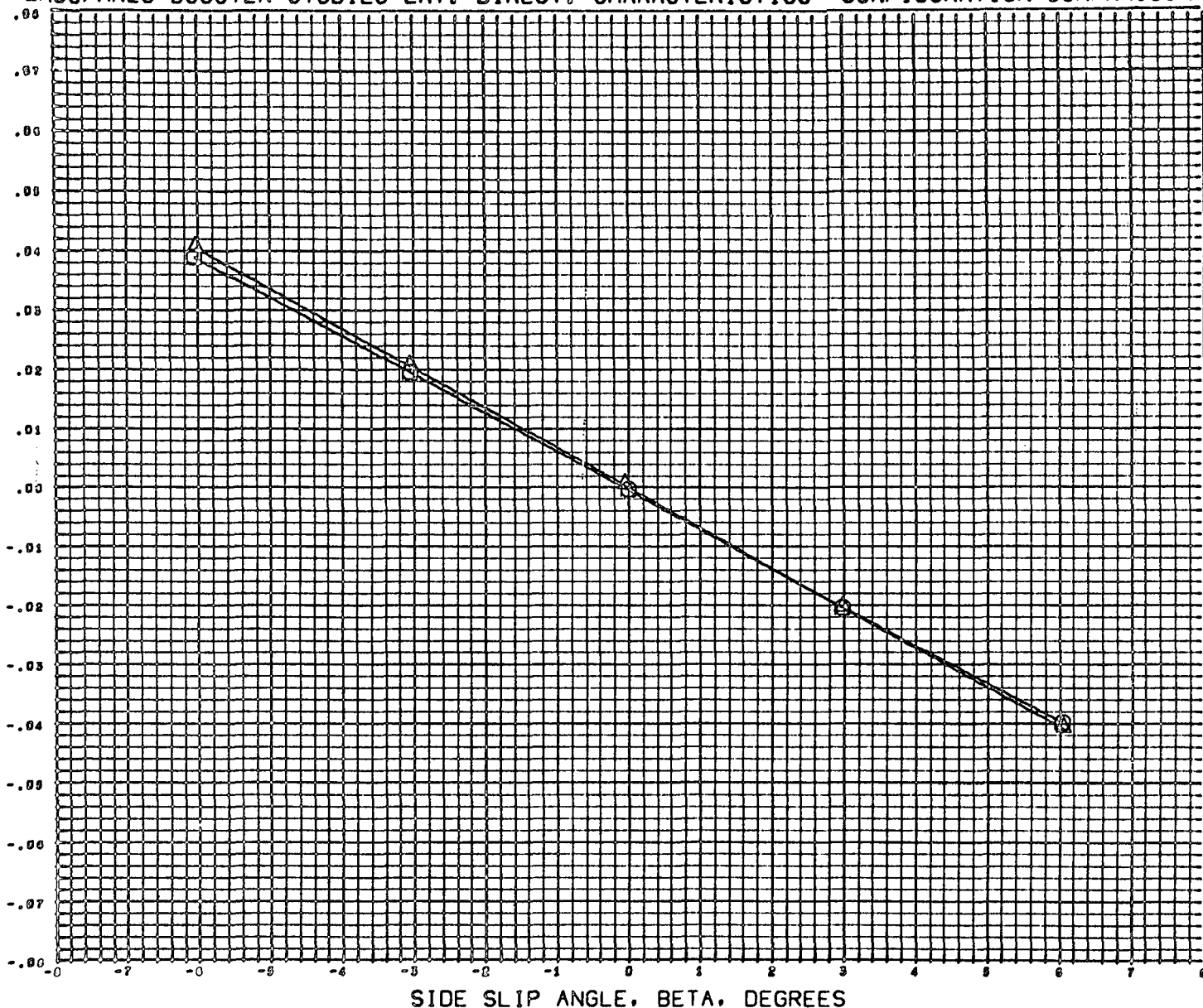
WNGPOS	INCIDW	CNDPOS	INCIDC
1.000	0.000		
1.000	0.000	1.000	3.000

REFERENCE INFORMATION	
SREF	1.9350 SQ.FT.
LREF	3.4930 FEET
BREF	3.4930 FEET
XMRP	2.9050 FEET
YMRP	0.0000 FEET
ZMRP	0.0187 FEET
SCALE	0.0150 SCALE

NACH 1.126

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON

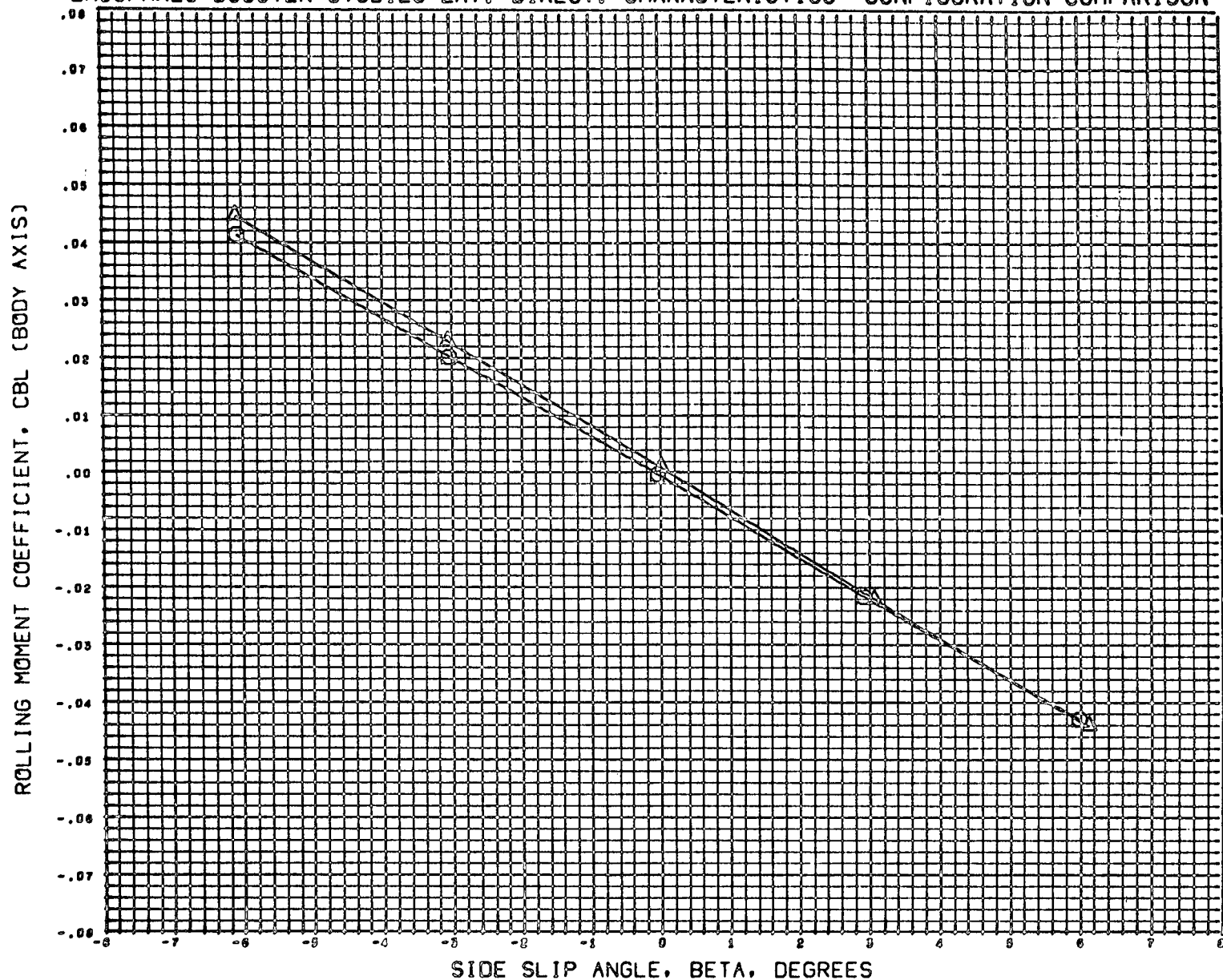
ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION	
(RNS006)	NSRDC-3210,HSFC/LMSC BOOSTER B1V1W1	1.000	0.000			GREF	1.3550 SQ.FT.
(RNS002)	NSRDC-3210,HSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	LREF	3.4930 FEET
						GREF	3.4930 FEET
						XMRP	2.5050 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0107 FEET
						SCALE	0.0150 SCALE

MACH 0.000

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL
(R3066)
(R3002)



CONFIGURATION DESCRIPTION

MSRDC-3210,MSFC/LHSC BOOSTER 01V1H1
MSRDC-3210,MSFC/LHSC BOOSTER 01C2F2H1V1

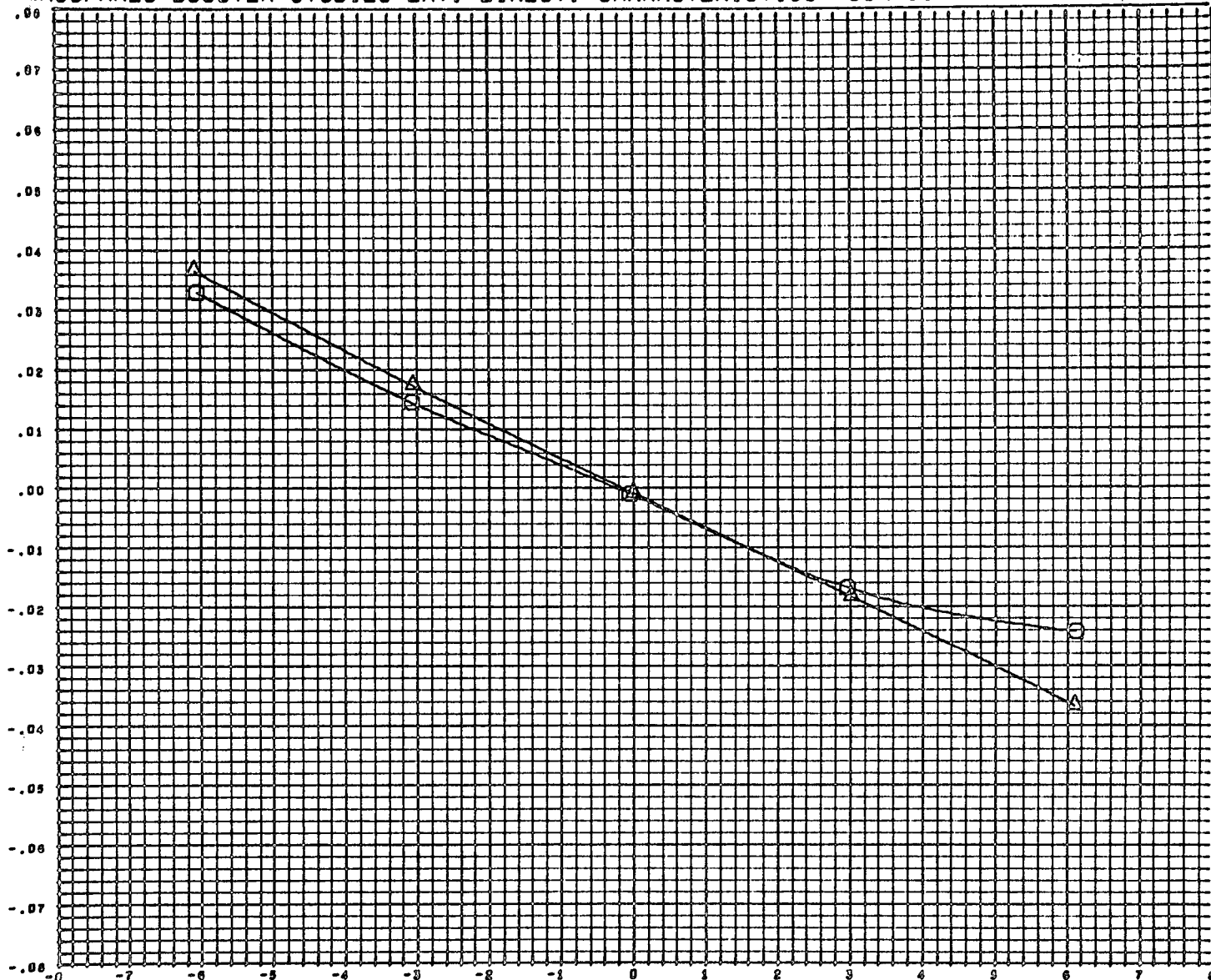
WNGPOS	INCIDW	CNDPOS	INCIDC
1.000	0.000		
1.000	0.000	1.000	5.000

REFERENCE INFORMATION	
OREF	1.3950 DEG.FT.
LREF	3.4930 DEG.FT.
BREF	0.4930 DEG.FT.
BHRP	8.9950 DEG.FT.
VHRP	0.0000 DEG.FT.
ZHRP	0.0187 DEG.FT.
SCALE	0.0150 SCALE

NACH 0.797

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)



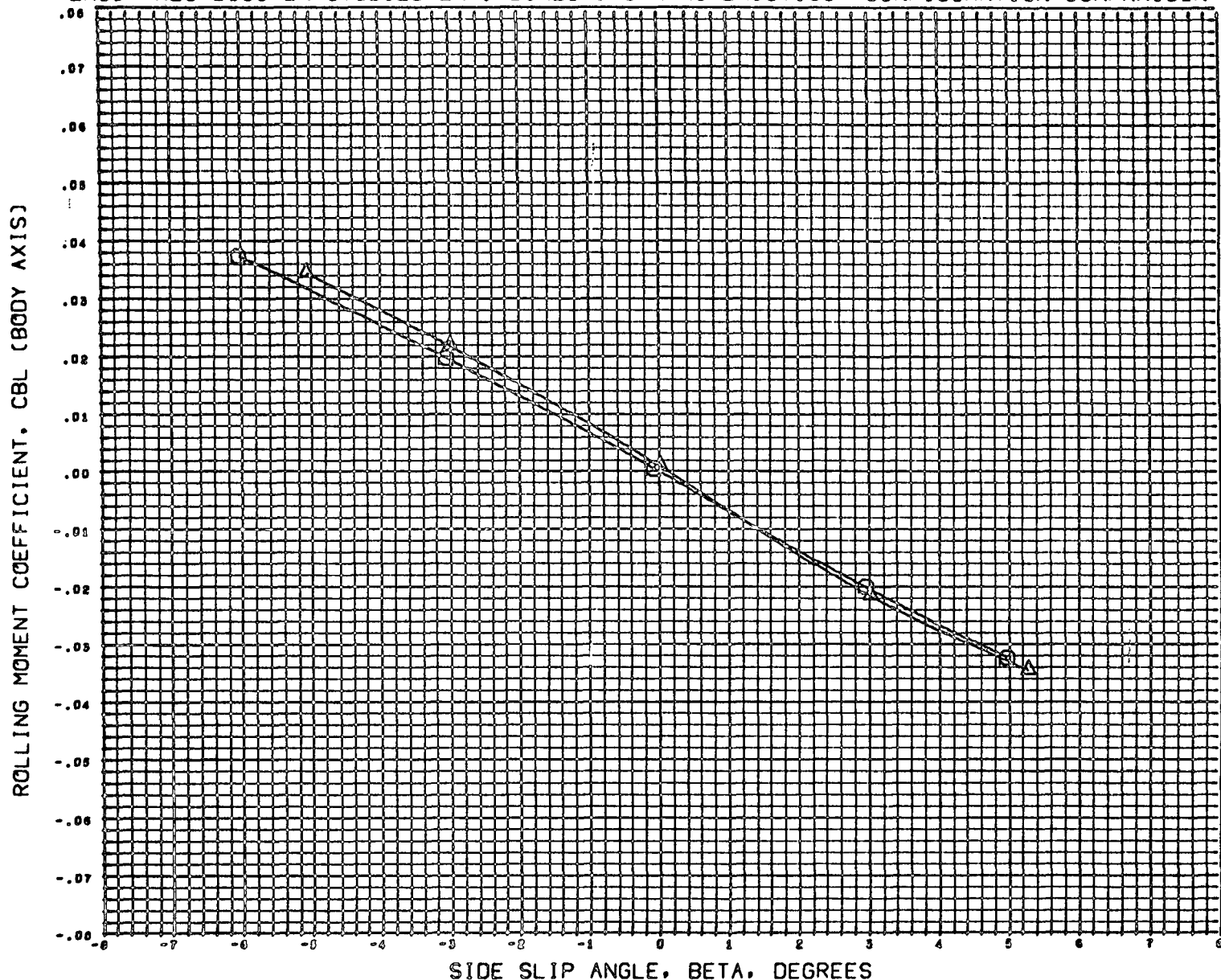
SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION	
(RN3006)	NORDC-3210,MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			SREF	1.3550 SQ.FT.
(RN3002)	NORDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	1.000	0.000	1.000	3.000	LREF	3.4530 FEET
						QREF	3.4530 FEET
						WMRP	2.0090 FEET
						VMRP	0.0000 FEET
						ZMRP	0.0107 FEET
						SCALE	0.0190 SCALE

MACH 0.900

10

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON

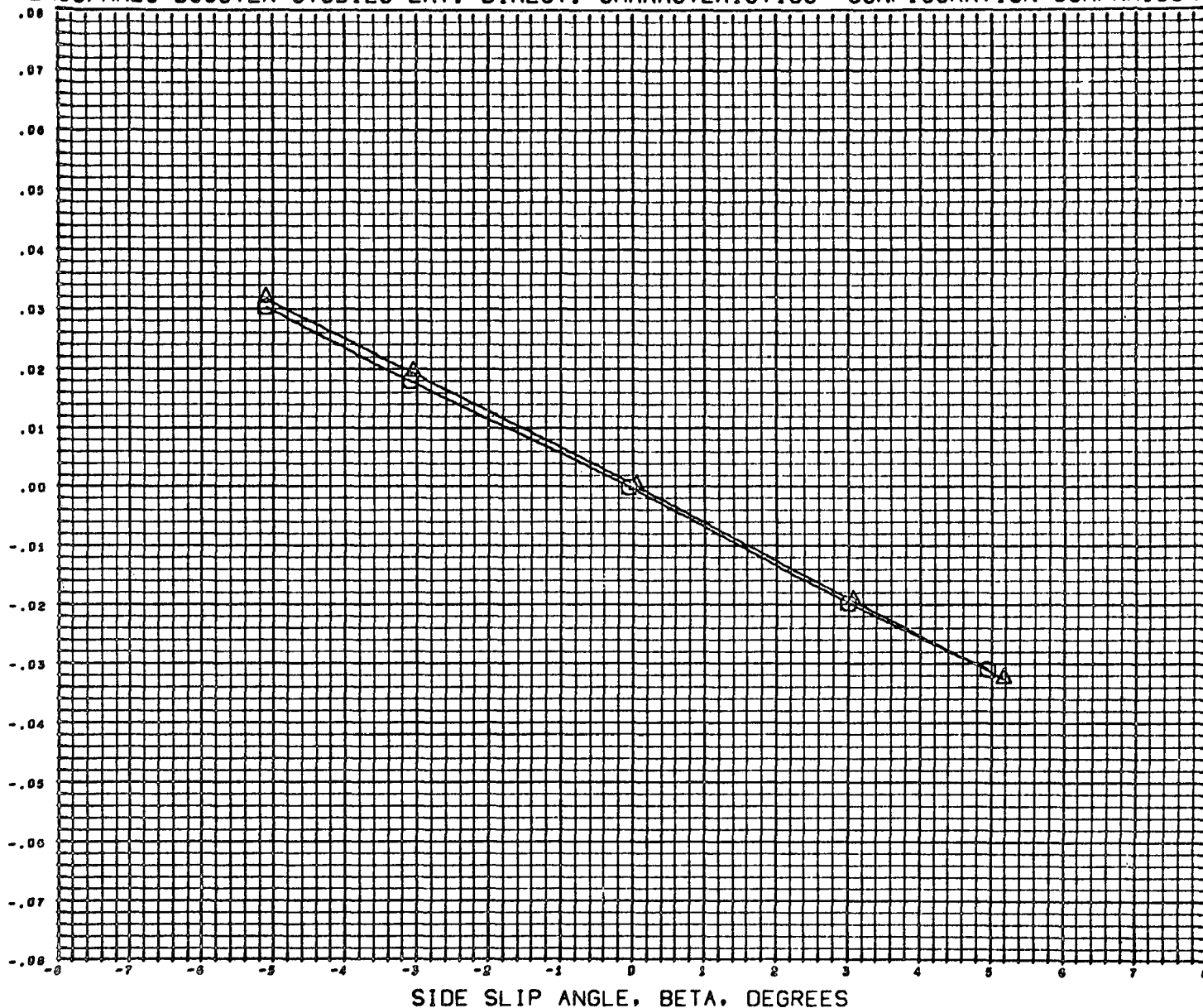


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION	
(RM3000)	MSRDC-3210,MSFC/LMSC BOOSTER D1V1W1	1.000	0.000			SREF	1.3550 SQ.FT.
(RM3002)	MSRDC-3210,MSFC/LMSC BOOSTER D1C2F2W1V1	1.000	0.000	1.000	3.000	LREF	3.4550 FEET
						BREF	3.4550 FEET
						XMRP	2.9050 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 1.001

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON

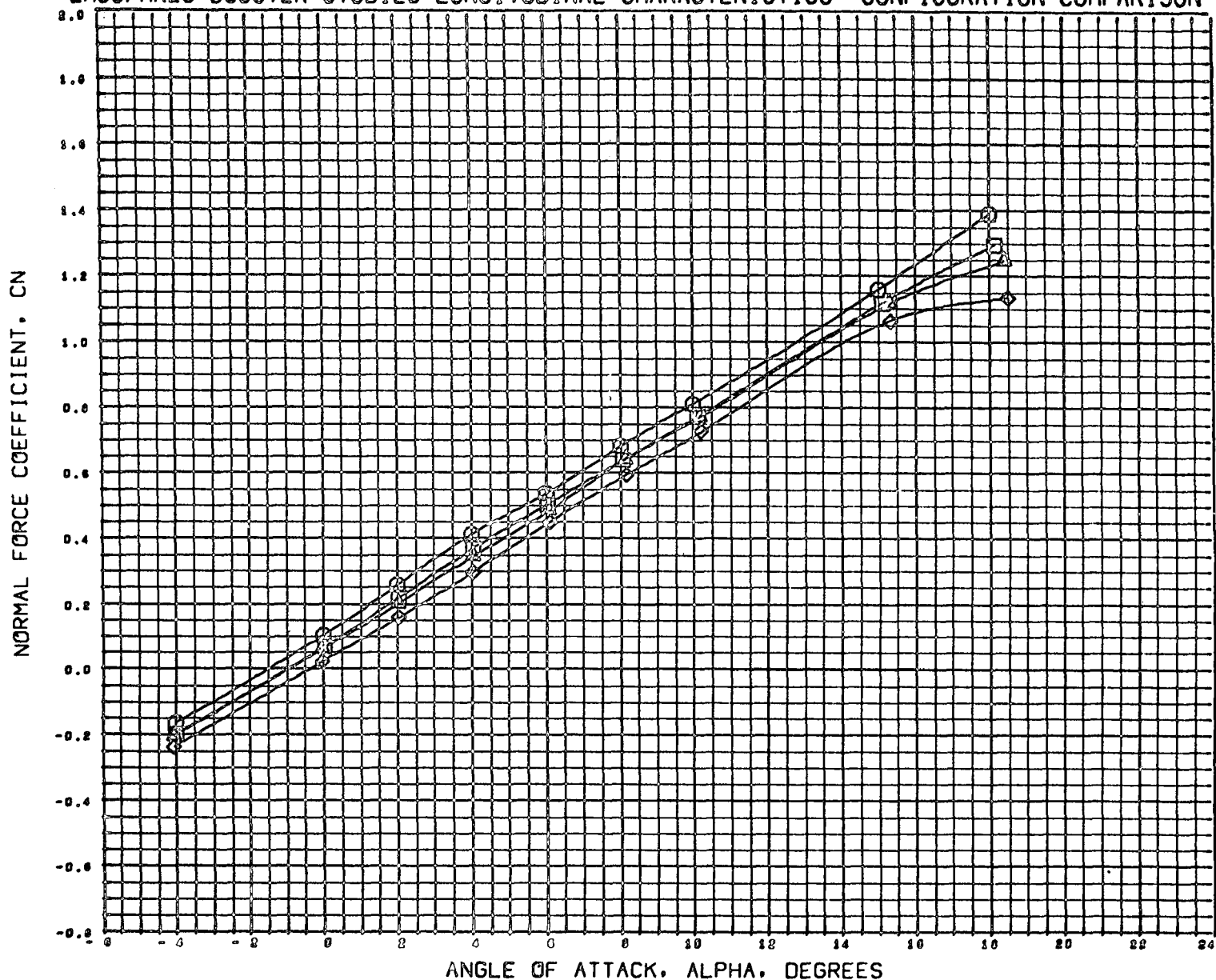
ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	WNGPOS	INCIDW	CNDPOS	INCIDC	REFERENCE INFORMATION	
(RMS066)	MSFC/LMSC BOOSTER B1V1W1	1.000	0.000			SREF	1.3950 60. FT.
(RMS068)	MSFC/LMSC BOOSTER B1C2F2H1V1	1.000	0.000	1.000	3.000	LREF	3.4930 FEET
						BREF	3.4930 FEET
						XMRP	2.9050 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0190 SCALE

WACH 1.126

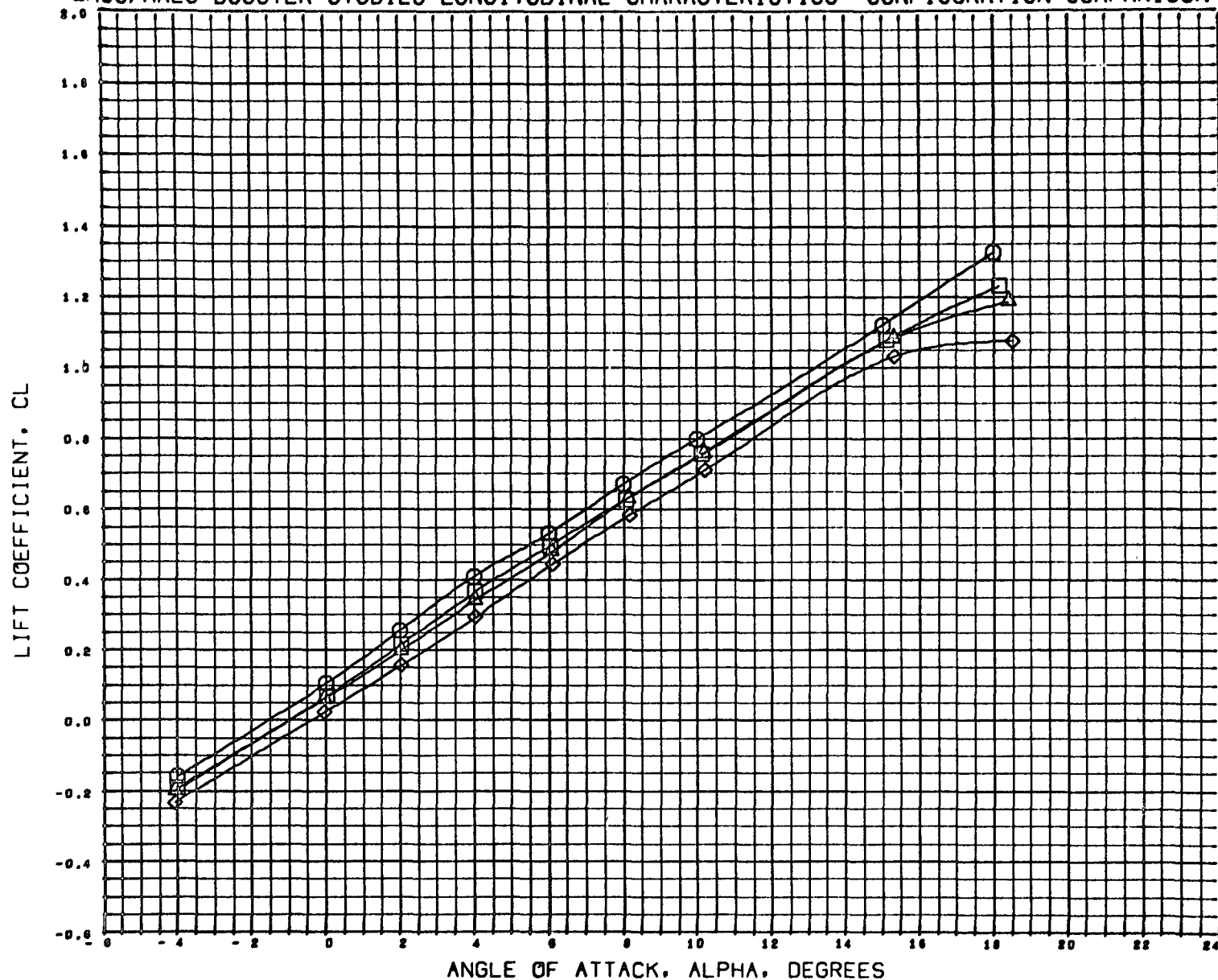
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300A)	MSRDC-3210, MSFC/LMSC DSTR. (PHR-ON) D1C2F2W1V1H3P	0.753	0.000	0.000	0.000	SREF	1.3990 SQ. FT.
(AN3062)	MSRDC-3210, MSFC/LMSC BOOSTER D1C2F2W1V1E3P	0.753	0.000	0.000	0.000	LREF	3.4530 FEET
(AN3070)	MSRDC-3210, MSFC/LMSC BOOSTER D1C2F2W1V1E3P	0.000	0.000	0.000	0.000	DREF	3.4530 FEET
(AN3100)	MSRDC-3210, MSFC/LMSC BOOSTER D1C2F2W1V1E3P	0.000	0.000	0.000	0.000	XMRP	2.8930 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0107 FEET
						SCALE	0.0150 SCALE

MACH 0.400

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

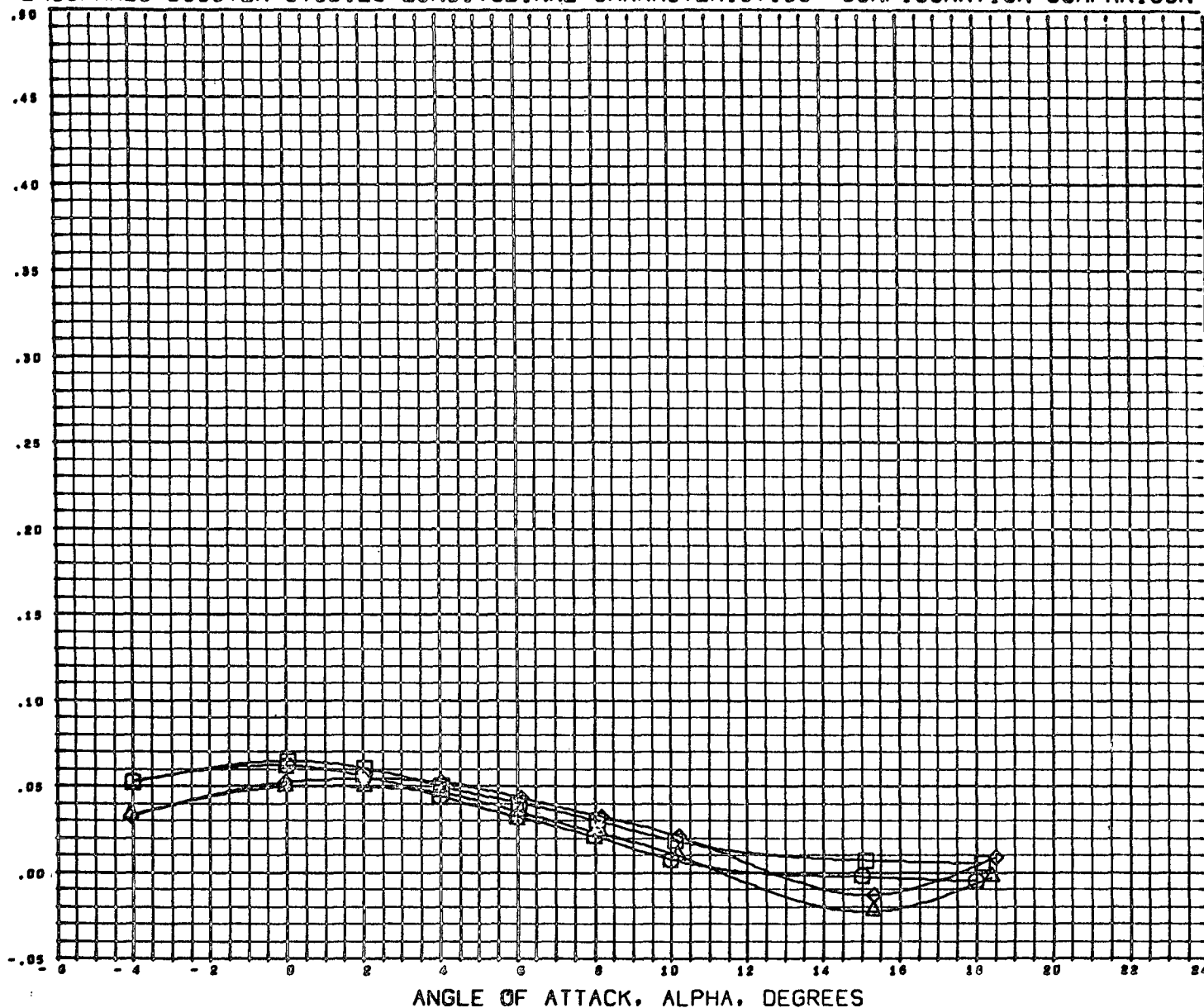


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300A)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3P	0.753	0.000	0.000	0.000	SREF	1.3530 80.FT.
(AN300B)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3P	0.753	0.000	0.000	0.000	LREF	3.4530 FEET
(AN3070)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3P	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(AN3100)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3P	0.000	0.000	0.000	0.000	XMRF	2.5000 FEET
						YMRF	0.0000 FEET
						ZMRF	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.400

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

AXIAL FORCE COEFFICIENT, CA



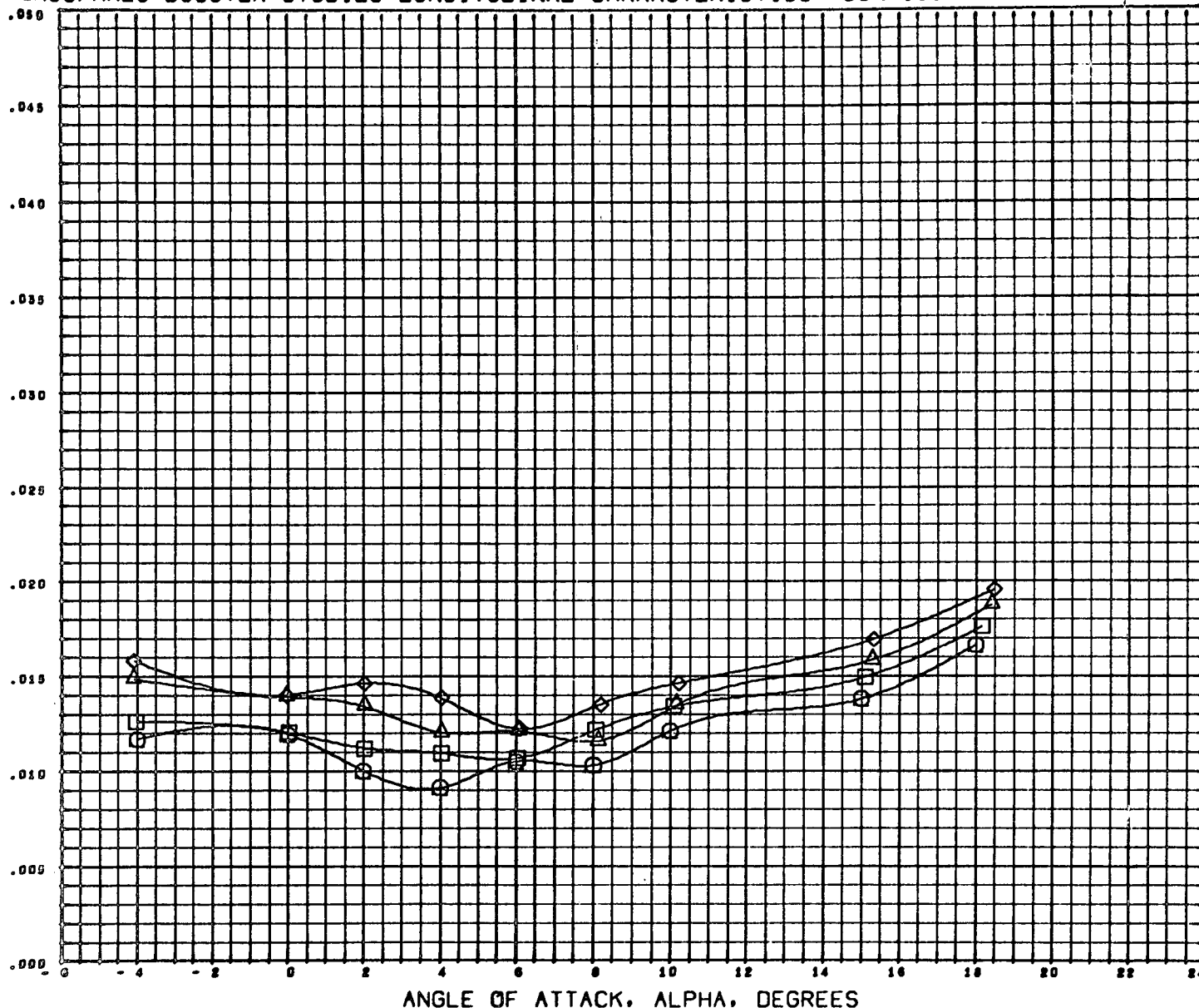
ANGLE OF ATTACK, ALPHA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	M8FLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300A)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1N3P	0.753	0.000	0.000	0.000	SREF	1.3550 66.FT.
(AN3002)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3P	0.753	0.000	0.000	0.000	LREF	3.4530 FEET
(AN3070)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3P	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(AN3166)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3P	0.000	0.000	0.000	0.000	XMRP	2.9050 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.400

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

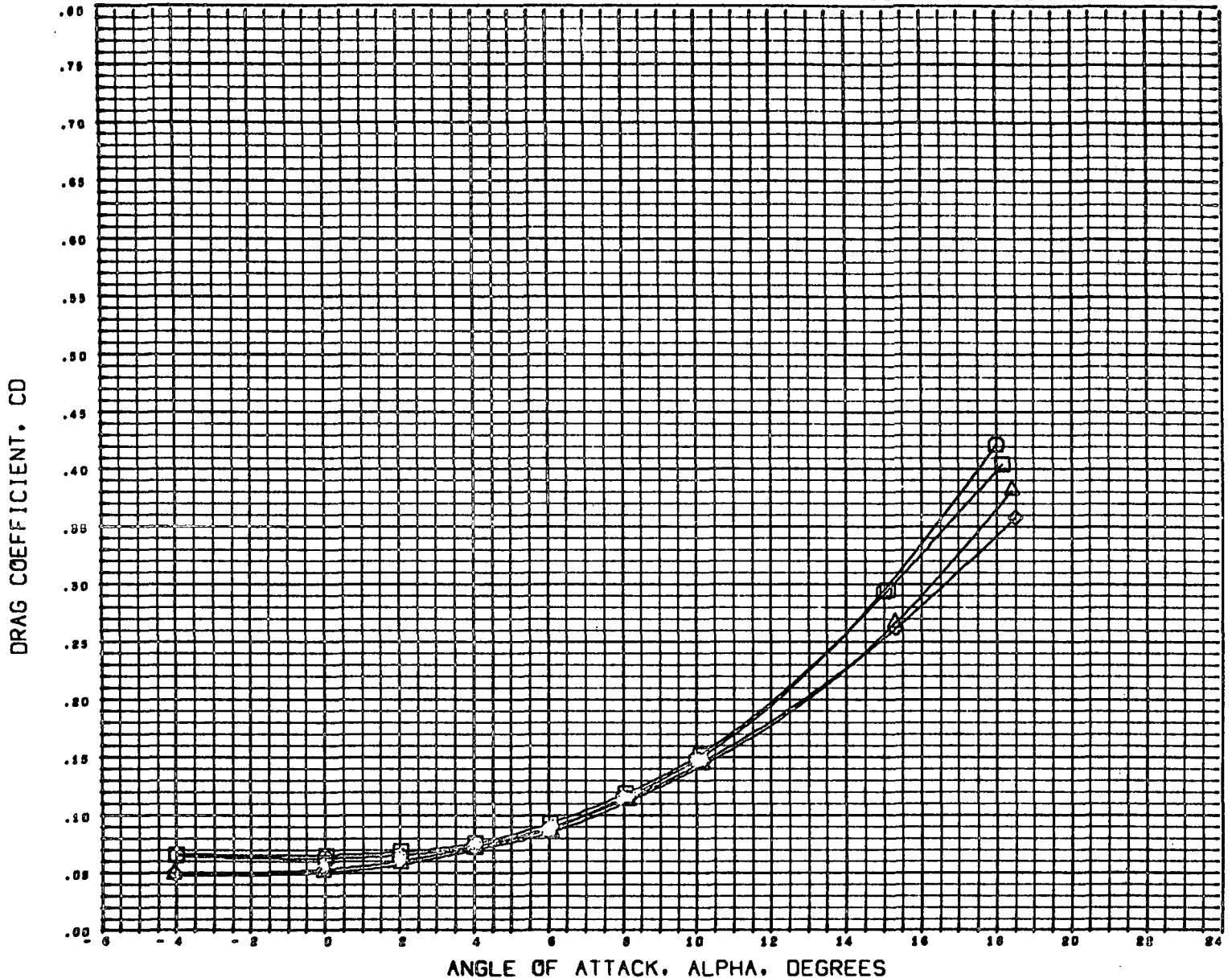
BASE AXIAL FORCE COEFFICIENT, CAB



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN3004)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3P	0.753	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN5002)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3P	0.753	0.000	0.000	0.000	LREF	3.4530 FEET
(RN5078)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3P	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN5108)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3P	0.000	0.000	0.000	0.000	XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.400

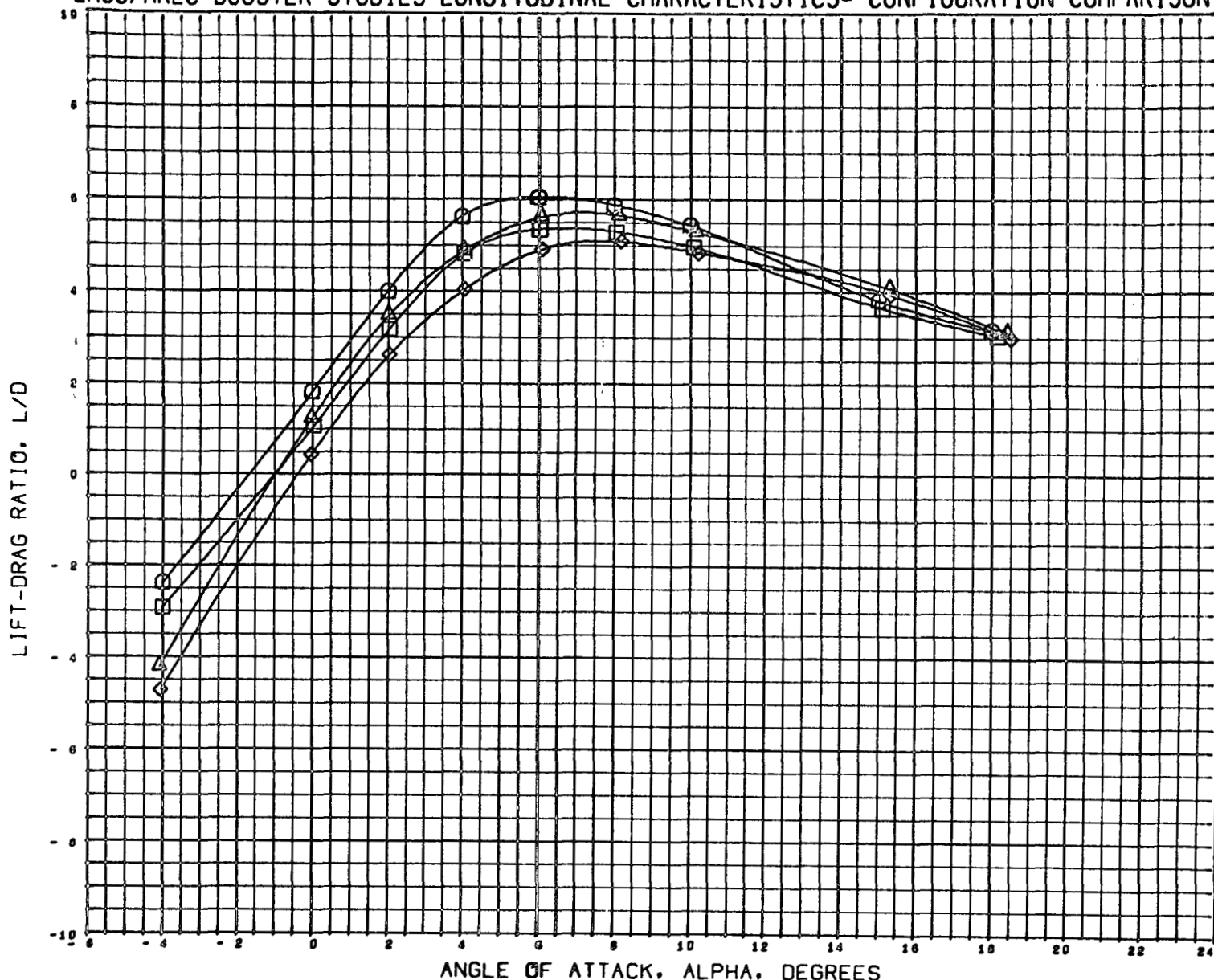
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN500A)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3P	0.753	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3082)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3P	0.753	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3078)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3P	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3166)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G3P	0.000	0.000	0.000	0.000	XMRF	2.5050 FEET
						YMRF	0.0000 FEET
						ZMRF	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.400

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

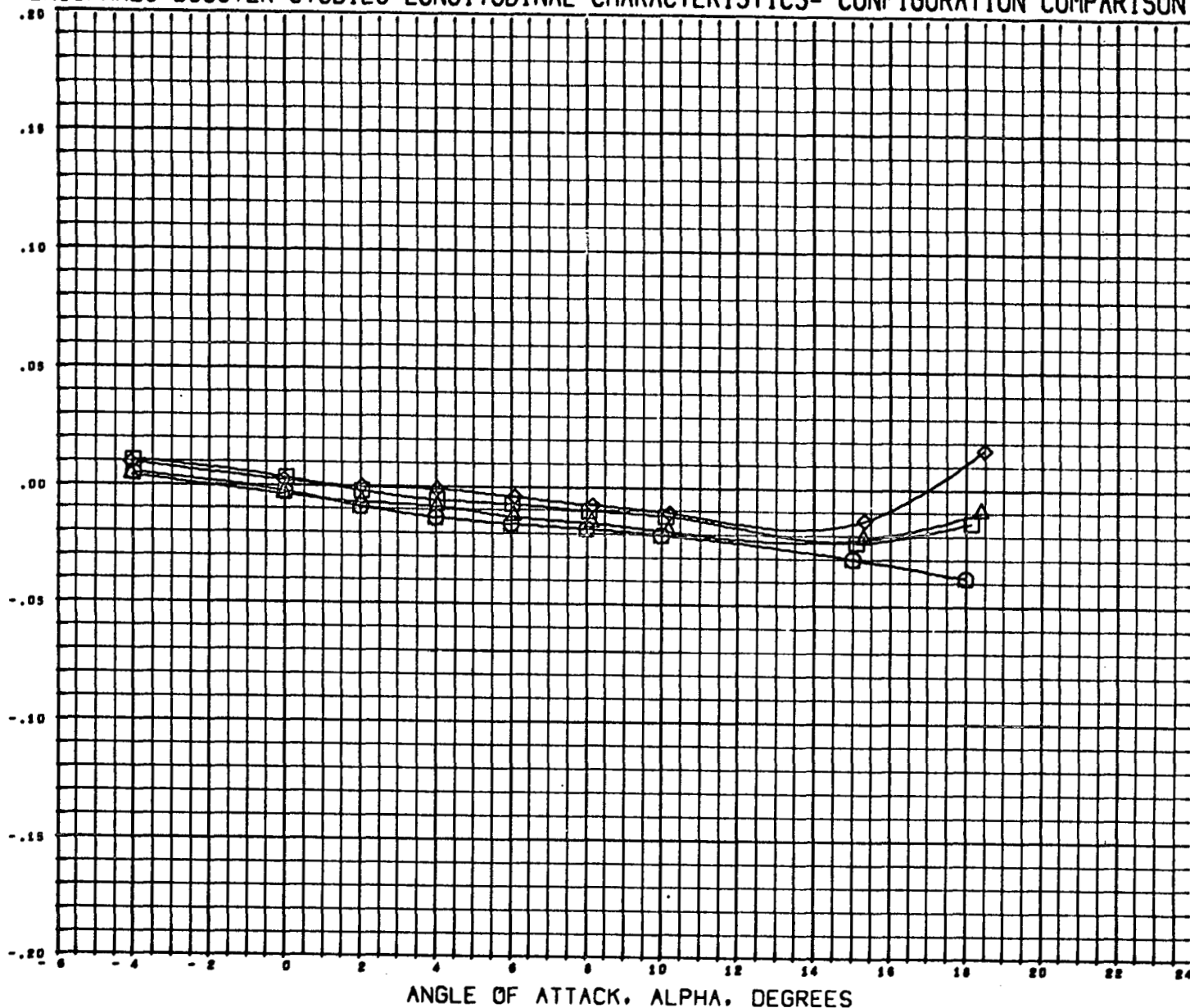


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300A)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3P	0.753	0.000	0.000	0.000	OREF	1.3550 SQ.FT.
(RN3002)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3P	0.753	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3078)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3P	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3160)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3P	0.000	0.000	0.000	0.000	XMRP	2.9980 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0190 SCALE

MACH 0.400

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

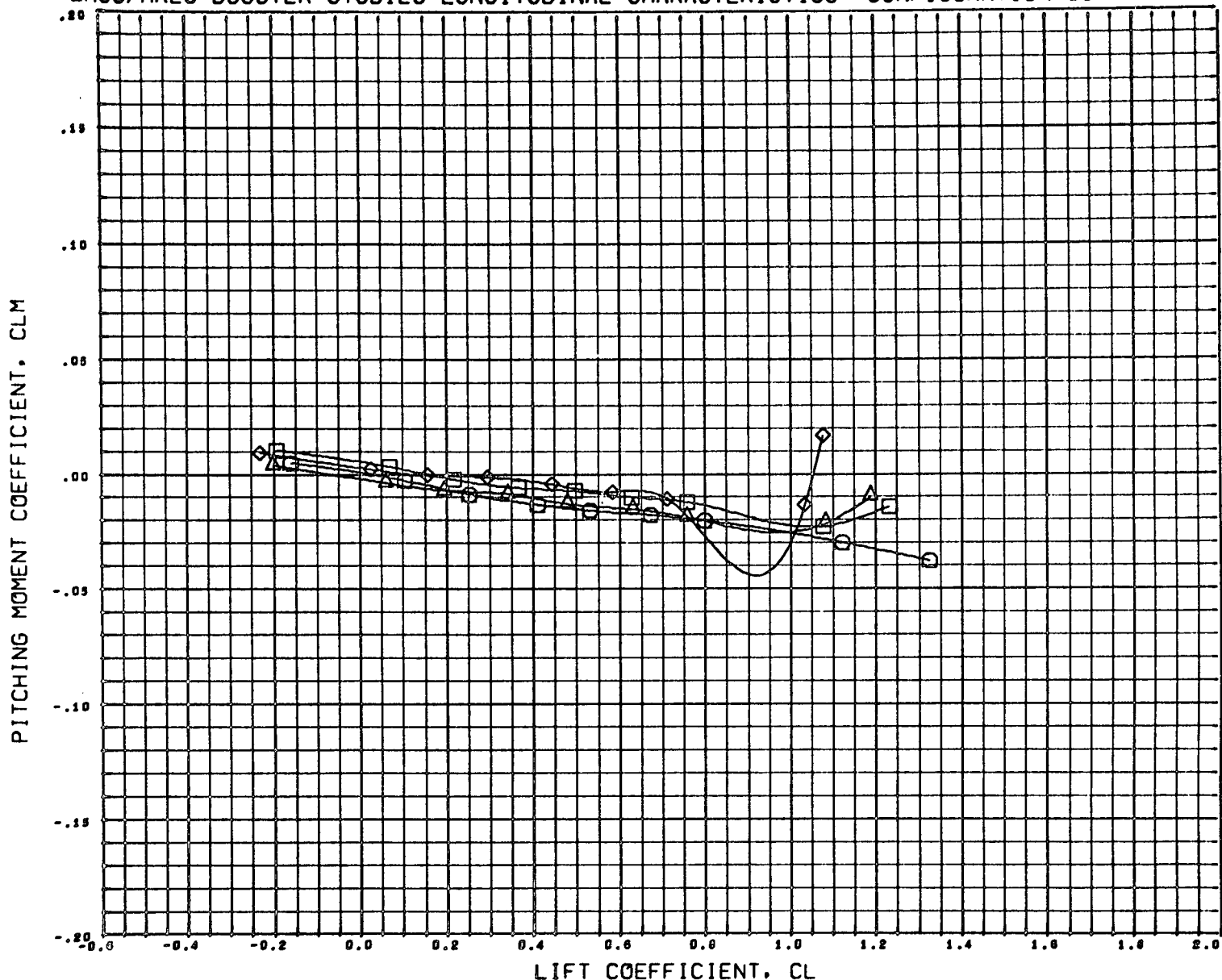
PITCHING MOMENT COEFFICIENT, CLM



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300A)	MSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H3P	0.753	0.000	0.000	0.000	SREF	1.3550 80.FT.
(AN3002)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3P	0.753	0.000	0.000	0.000	LREF	3.4930 FEET
(AN3070)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3P	0.000	0.000	0.000	0.000	BREF	3.4930 FEET
(AN3100)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G3P	0.000	0.000	0.000	0.000	XMRP	2.5050 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.400

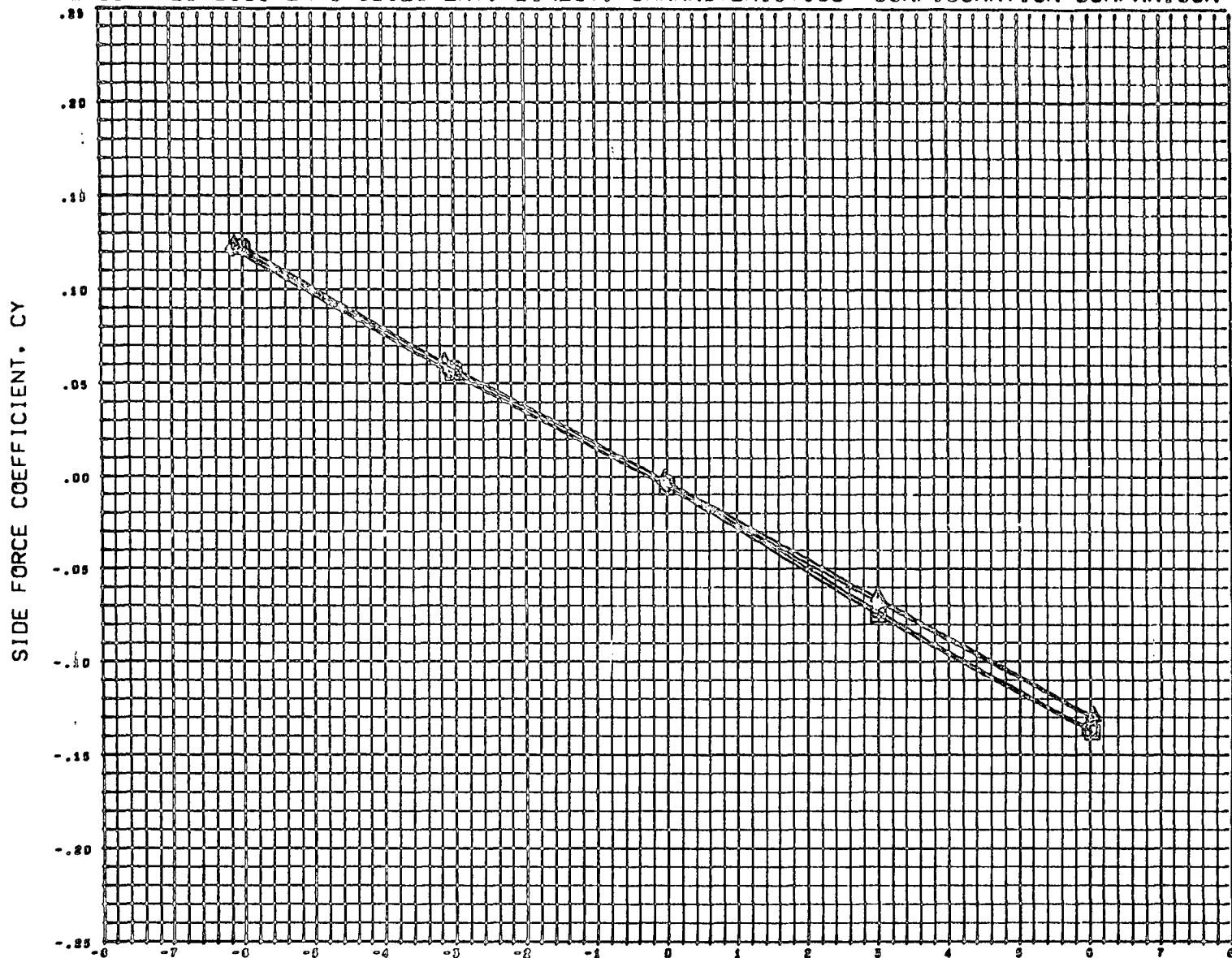
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300A)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3P	0.753	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(AN3002)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3P	0.753	0.000	0.000	0.000	LREF	3.4930 FEET
(AN3070)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3P	0.000	0.000	0.000	0.000	BREF	3.4930 FEET
(AN3100)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G3P	0.000	0.000	0.000	0.000	XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0190 SCALE

MACH 0.400

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON



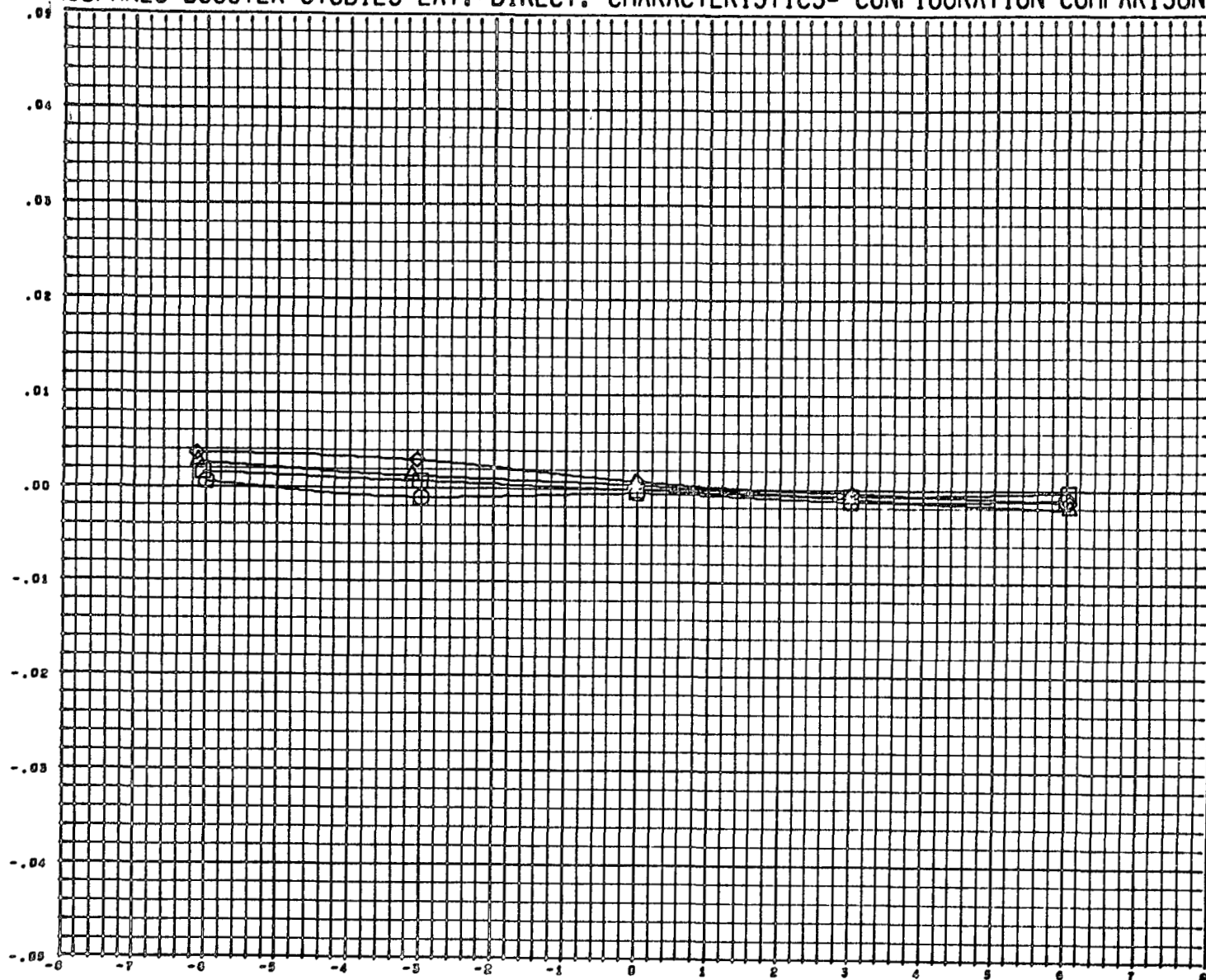
SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION	
(AN300C)	MSRDC-3210, H8FC/LH8C BOOSTER (PHR-ON) 01C2F2M1V1H3P	-0.039	0.753	0.000	0.000	SREF	1.3990 80.FT.
(RN3083)	MSRDC-3210, H8FC/LH8C BOOSTER 01C2F2M1V1E3P	-0.039	0.753	0.000	0.000	LREF	3.4990 FEET
(RN3079)	MSRDC-3210, H8FC/LH8C BOOSTER 01C2F2M1V1E3P	-0.022	0.000	0.000	0.000	DREF	3.4990 FEET
(RN3167)	MSRDC-3210, H8FC/LH8C BOOSTER 01C2F2M1V1E3P	0.019	0.000	0.000	0.000	XMRP	2.9990 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.400

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON

YAWING MOMENT COEFFICIENT, CYN (BODY AXIS)



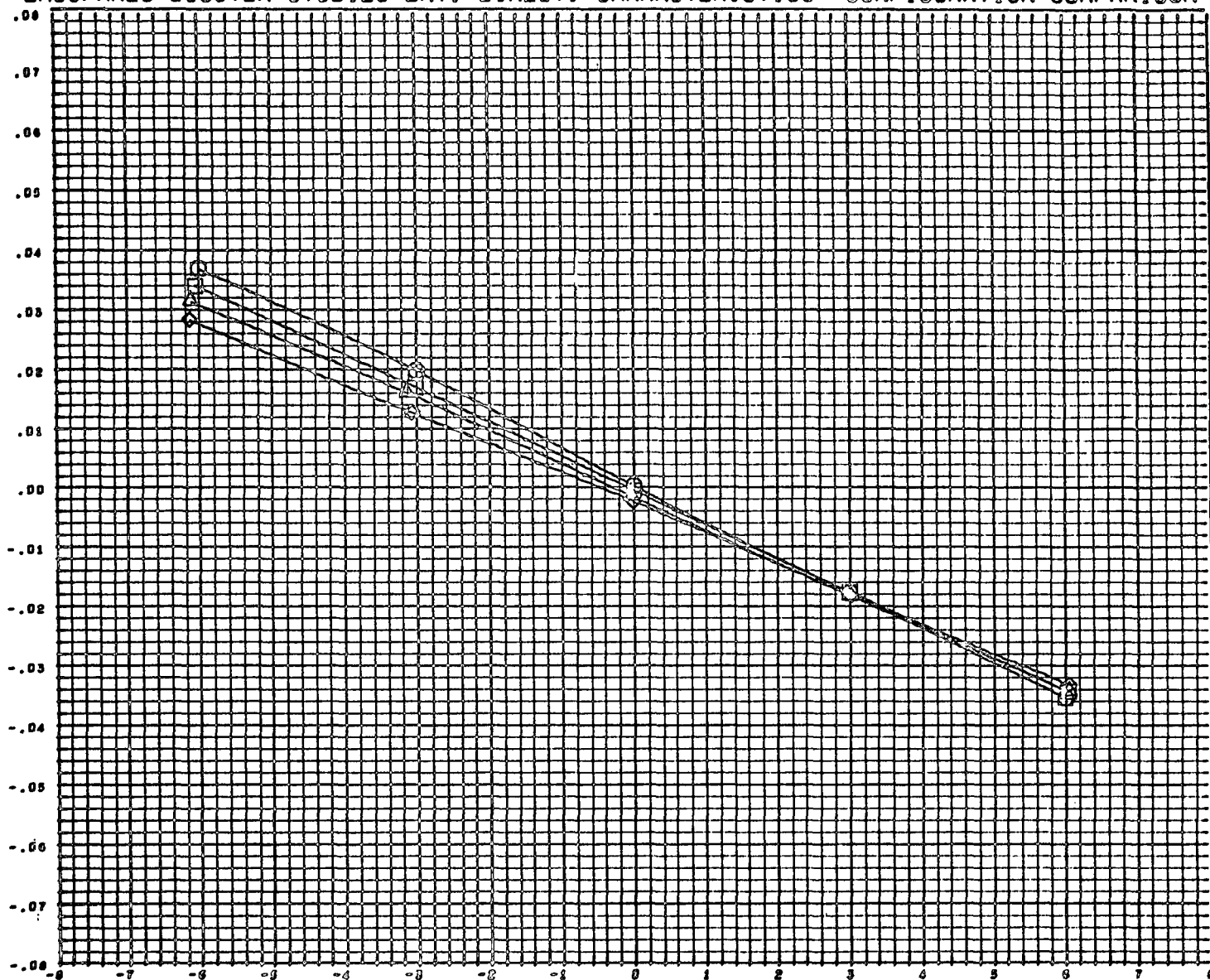
SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION	
(AN300C)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3P	-0.039	0.753	0.000	0.000	SREF	1.3550 80.FT.
(RN3003)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3P	-0.039	0.753	0.000	0.000	LREF	3.4550 FEET
(RN3070)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3P	-0.022	0.000	0.000	0.000	BREF	3.4550 FEET
(RN3107)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G3P	0.015	0.000	0.000	0.000	XMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0190 SCALE

MACH 0.400

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)

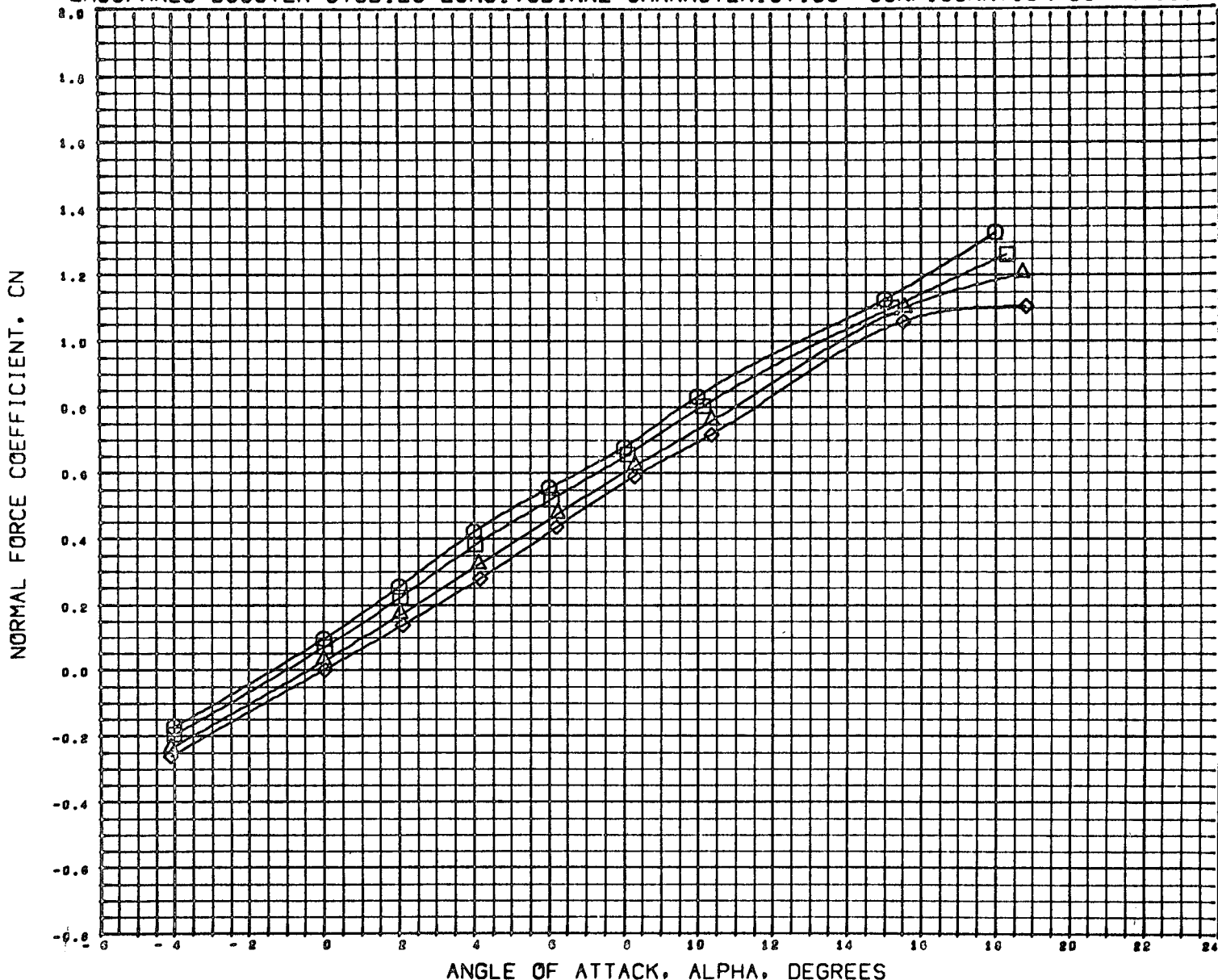


SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION	
(AN300C)	MSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) 01C2F2W1V1H3P	-0.039	0.753	0.000	0.000	SREF	1.3550 SQ.FY.
(RN3083)	MSRDC-3210, MSFC/LMSC BOOSTER 01C2F2W1V1E3P	-0.039	0.753	0.000	0.000	LREF	3.4930 FEET
(RN3079)	MSRDC-3210, MSFC/LMSC BOOSTER 01C2F2W1V1E3P	-0.022	0.000	0.000	0.000	BREF	3.4930 FEET
(RN3167)	MSRDC-3210, MSFC/LMSC BOOSTER 01C2F2W1V1E3P	0.015	0.000	0.000	0.000	XMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MAC 0.400

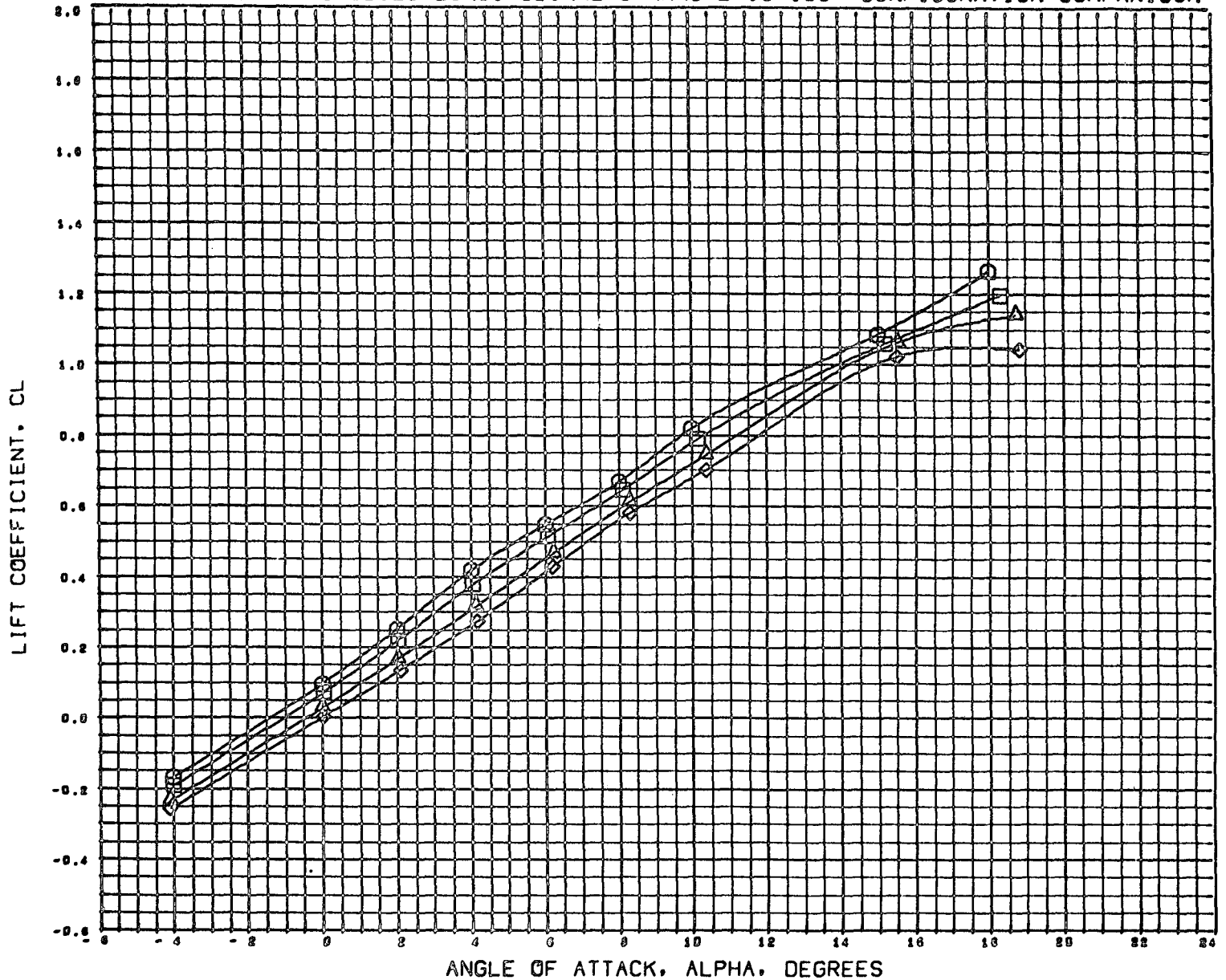
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300B)	○	MSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H3P	0.732	0.000	0.000	0.000	SREF	1.3350 80.FT.
(RN3074)	△	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E3P	0.732	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3070)	◇	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E3P	0.000	0.000	0.000	0.000	GREF	3.4530 FEET
(RN3170)	□	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G3P	0.000	0.000	0.000	0.000	XMRP	2.5950 FEET
							YMRP	0.0000 FEET
							ZMRP	0.0187 FEET
							SCALE	0.0150 SCALE

MACH 0.500

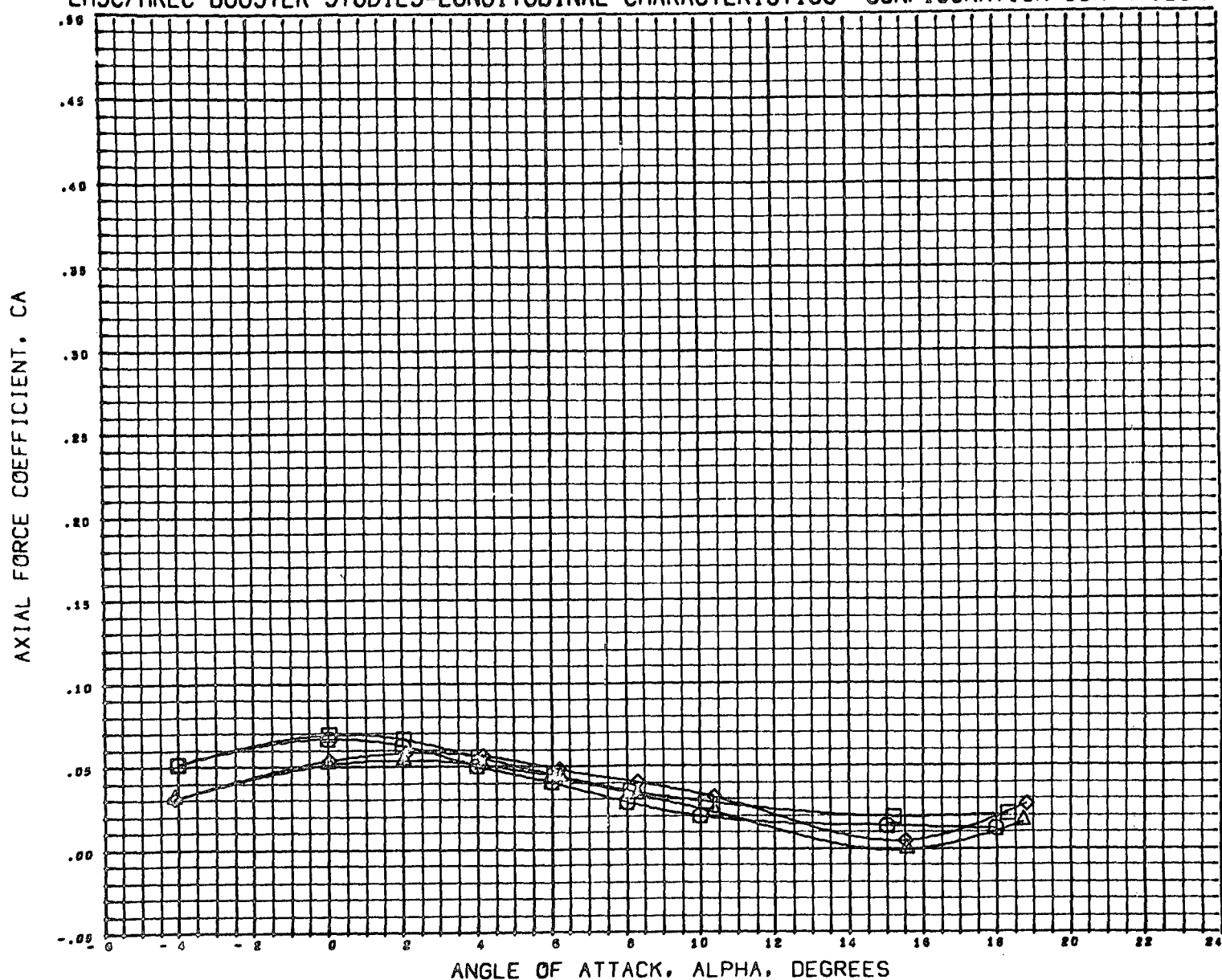
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	M8FLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AM300B)	M8RDC-3210, M8FC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H3P	0.732	0.000	0.000	0.000	SREF	1.3990 SQ. FT.
(RM3074)	M8RDC-3210, M8FC/LMSC BOOSTER B1C2F2W1V1E3P	0.732	0.000	0.000	0.000	LREF	3.4530 FEET
(RM3070)	M8RDC-3210, M8FC/LMSC BOOSTER B1C2F2W1V1E3P	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RM3170)	M8RDC-3210, M8FC/LMSC BOOSTER B1C2F2W1V1E3P	0.000	0.000	0.000	0.000	XHRP	2.9930 FEET
						YHRP	0.0000 FEET
						ZHRP	0.0107 FEET
						SCALE	0.0190 SCALE

MACH 0.500

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

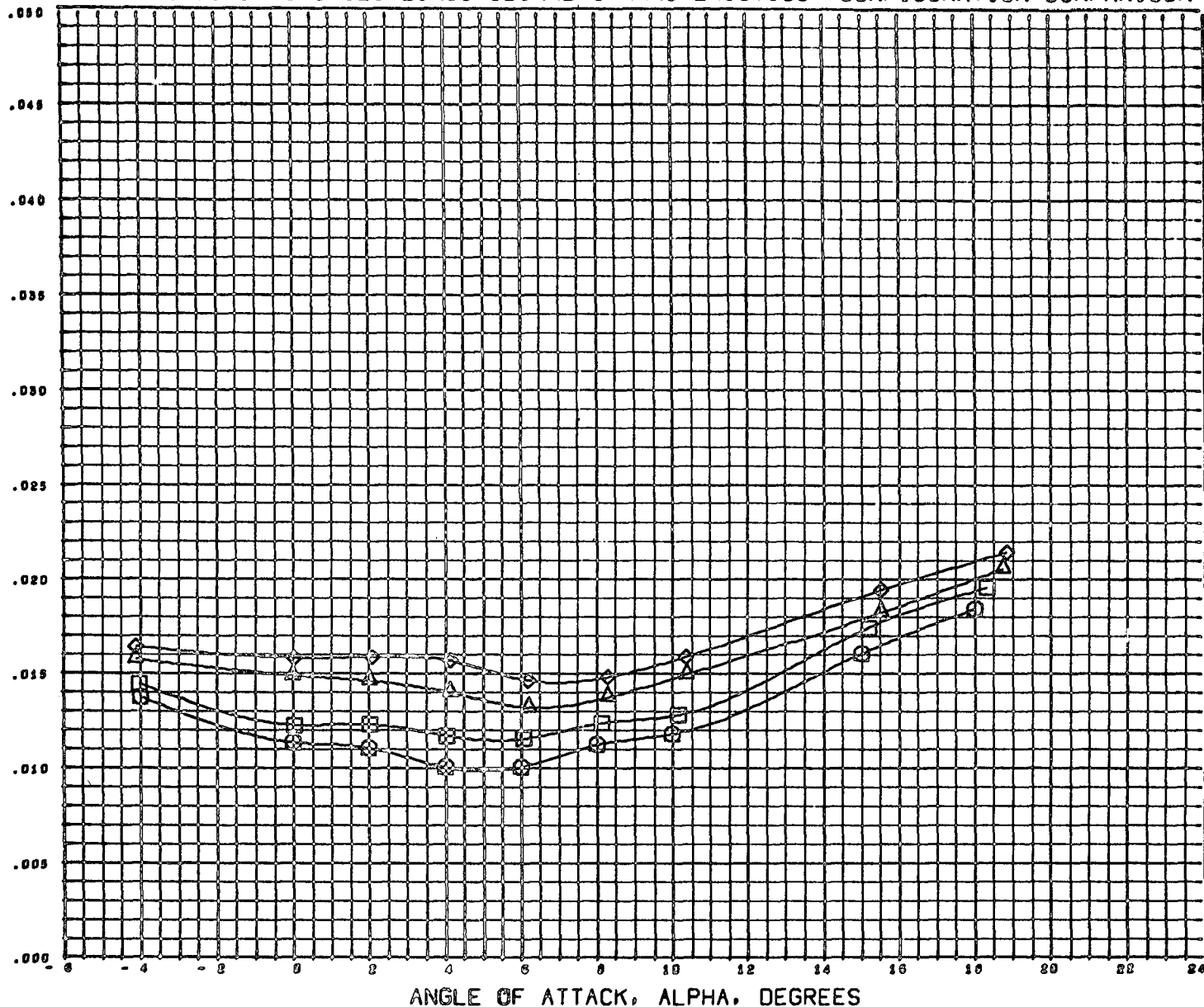


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300B)	MSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H3P	0.732	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(AN3074)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E3P	0.732	0.000	0.000	0.000	LREF	3.4530 FEET
(AN3070)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E3P	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(AN3170)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G3P	0.000	0.000	0.000	0.000	XHRP	2.9950 FEET
						YHRP	0.0000 FEET
						ZHRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.500

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

BASE AXIAL FORCE COEFFICIENT, CAB

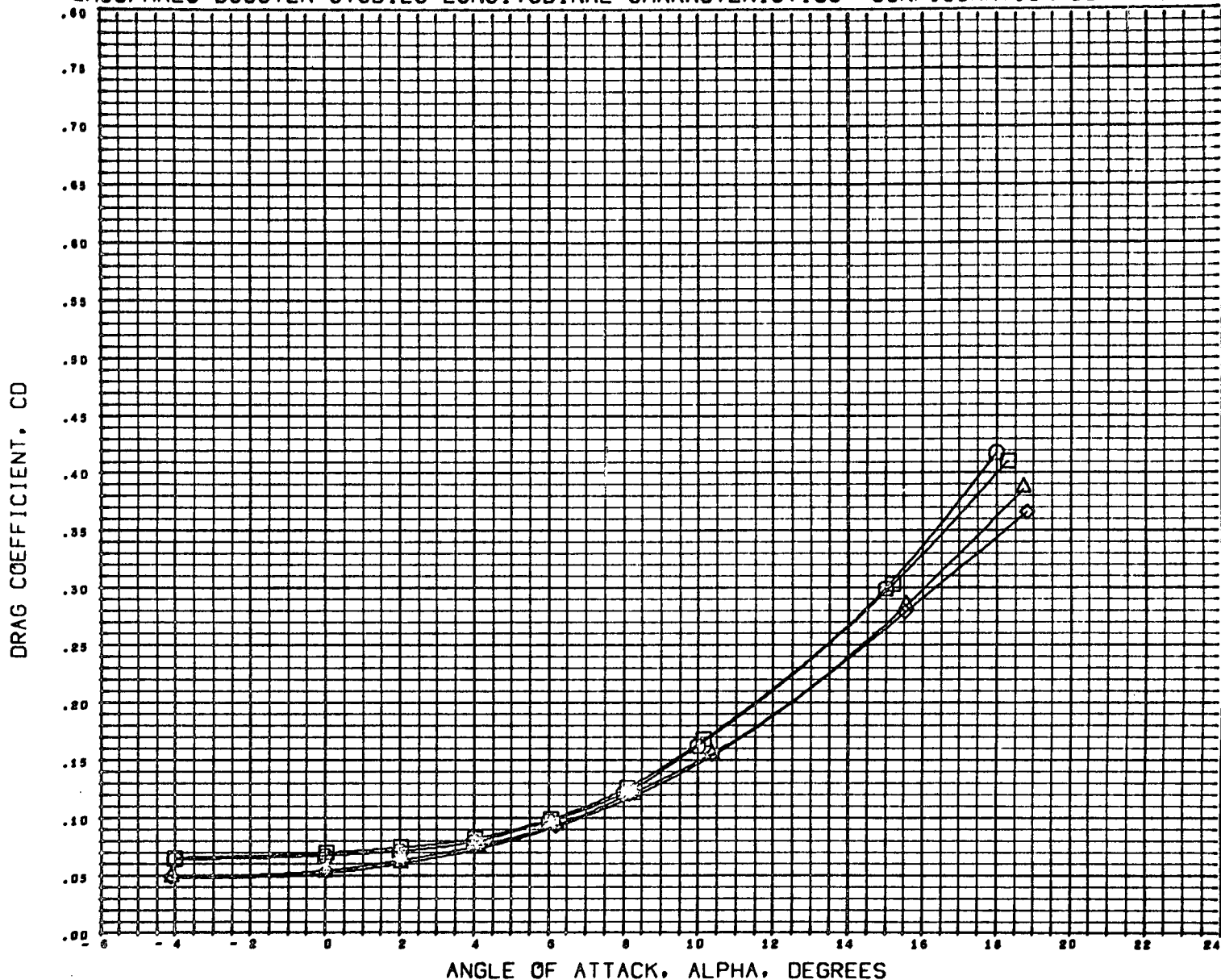


ANGLE OF ATTACK, ALPHA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN3008)	MSRDC-3210, MSFC/LHSC BSTR. (PWR-ON) DIC2F2W1V1H3P	0.732	0.000	0.000	0.000	SREF	1.3550 80.FT.
(AN3074)	MSRDC-3210, MSFC/LHSC BOOSTER DIC2F2W1V1E3P	0.732	0.000	0.000	0.000	LREF	3.4530 FEET
(AN3070)	MSRDC-3210, MSFC/LHSC BOOSTER DIC2F2W1V1E3P	0.000	0.000	0.000	0.000	SREF	3.4530 FEET
(AN3170)	MSRDC-3210, MSFC/LHSC BOOSTER DIC2F2W1V1E3P	0.000	0.000	0.000	0.000	XMRP	2.5990 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.900

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	NSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(ANS008)	○	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3P	0.732	0.000	0.000	0.000	SREF	1.3350 SQ.FT.
(RNS074)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3P	0.732	0.000	0.000	0.000	LREF	3.4330 FEET
(RNS070)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3P	0.000	0.000	0.000	0.000	BREF	3.4330 FEET
(RNS170)	□	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G3P	0.000	0.000	0.000	0.000	WMRP	2.5950 FEET
							VMRP	0.0000 FEET
							ZMRP	0.0187 FEET
							SCALE	0.0150 SCALE

MACH 0.500

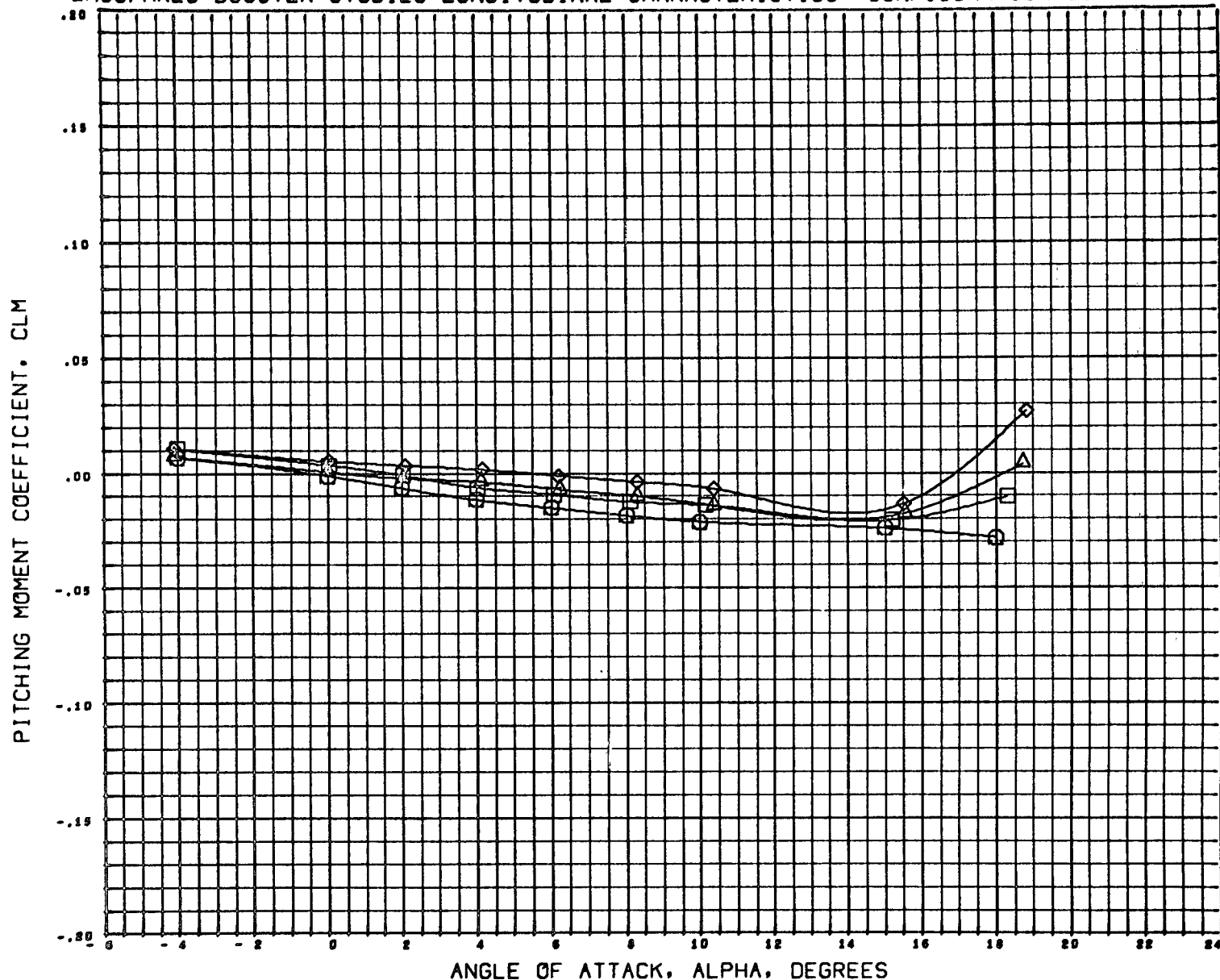
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN3008)	○	NSRDC-3210, H8FC/LHSC BSTR. (PWR-ON) B1C2F2W1V1H3P	0.732	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(AN3074)	△	NSRDC-3210, H8FC/LHSC BOOSTER B1C2F2W1V1E3P	0.732	0.000	0.000	0.000	LREF	3.4550 FEET
(AN3070)	◇	NSRDC-3210, H8FC/LHSC BOOSTER B1C2F2W1V1E3P	0.000	0.000	0.000	0.000	BREF	3.4550 FEET
(AN3170)	□	NSRDC-3210, H8FC/LHSC BOOSTER B1C2F2W1V1E3P	0.000	0.000	0.000	0.000	XMRP	2.5950 FEET
							YMRP	0.0000 FEET
							ZMRP	0.0187 FEET
							SCALE	0.0150 SCALE

KACH 0.500

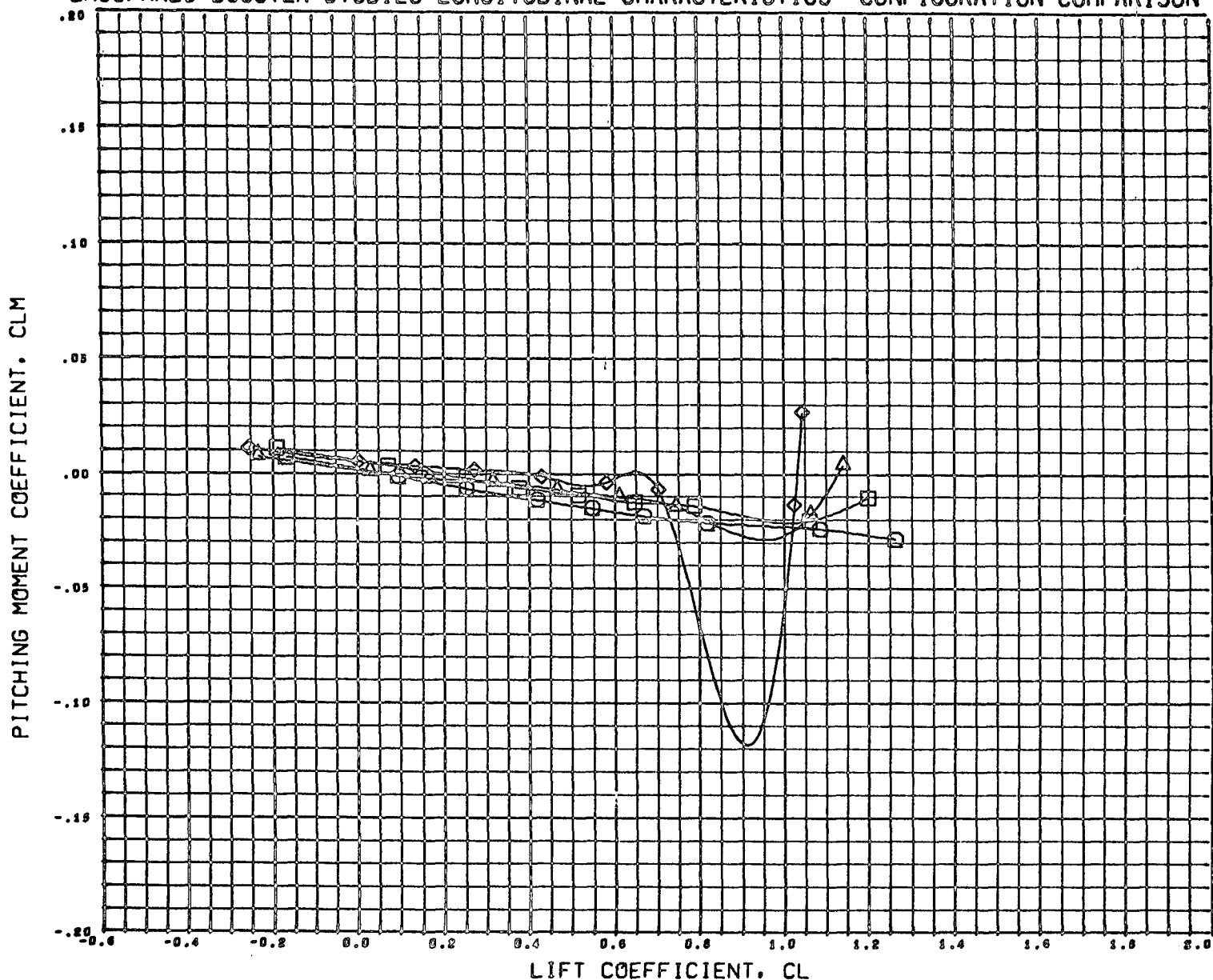
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN3008)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3P	0.732	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(AN3074)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3P	0.732	0.000	0.000	0.000	LREF	3.4530 FEET
(AN3070)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3P	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(AN3170)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G3P	0.000	0.000	0.000	0.000	XMHP	2.5950 FEET
						YMHP	0.0000 FEET
						ZMHP	0.0107 FEET
						SCALE	0.0150 SCALE

MACH 0.500

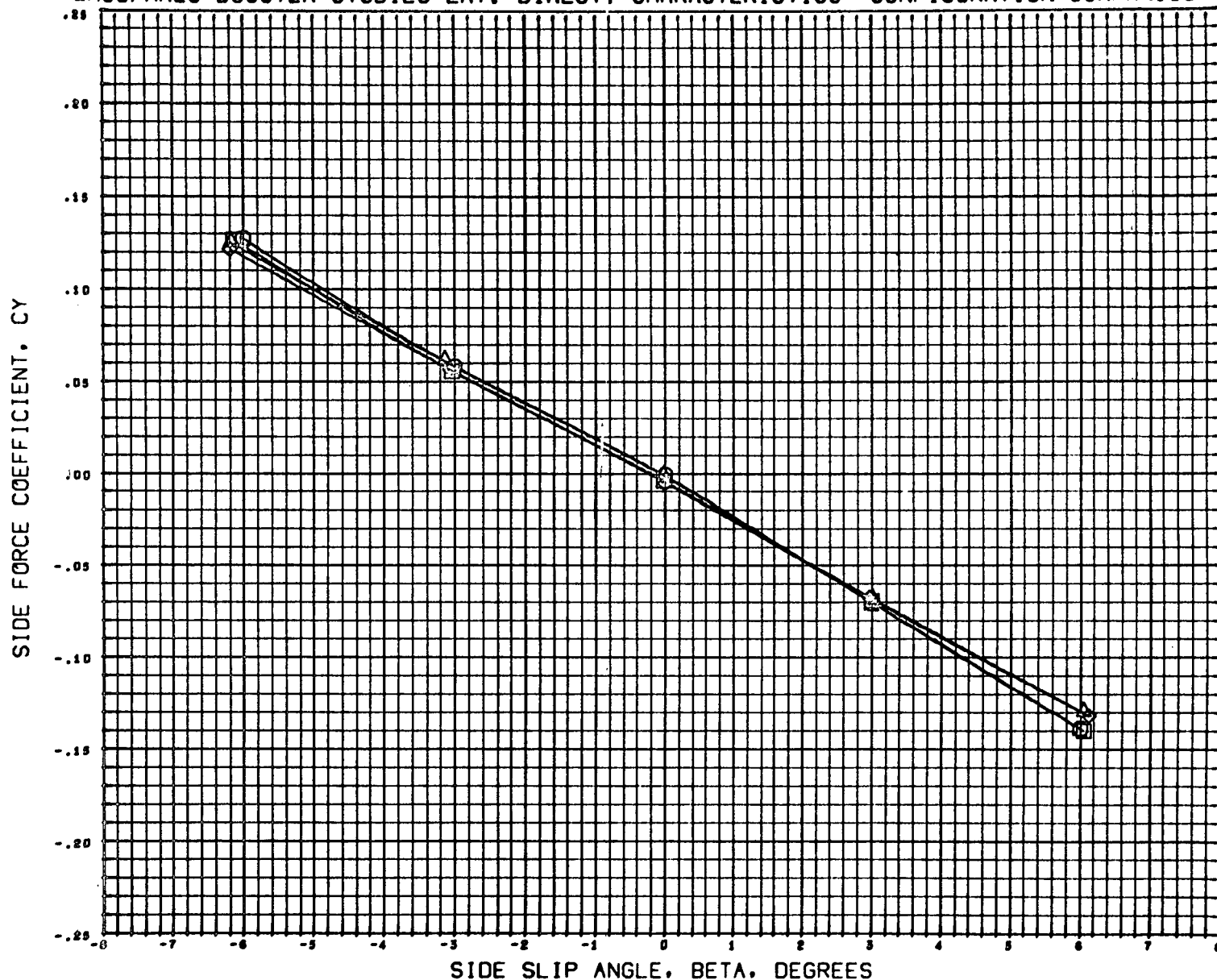
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN3008)	MSRDC-3210, MSFC/LMSC BOOSTER (PWR-ON) B1C2F2W1V1H3P	0.732	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(AN3074)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E3P	0.732	0.000	0.000	0.000	LREF	3.4530 FEET
(AN3070)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E3P	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(AN3170)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E3P	0.000	0.000	0.000	0.000	XHRP	2.5030 FEET
						YHRP	0.0000 FEET
						ZHRP	0.0197 FEET
						SCALE	0.0150 SCALE

MACH 0.900

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON

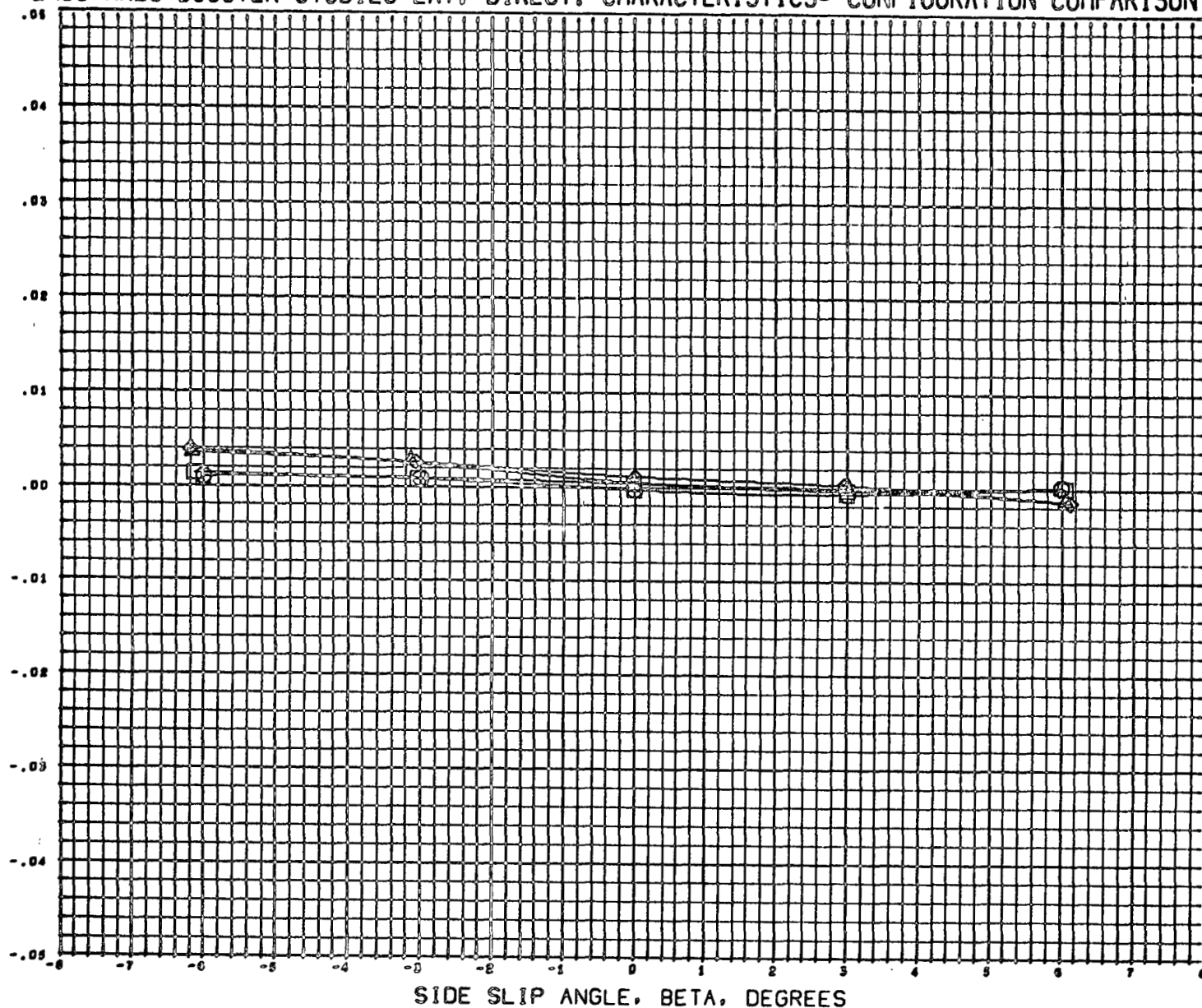


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION	
(AN300D)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3P	-0.017	0.726	0.000	0.000	SREF	1.3550 39.FT.
(RN3075)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3P	-0.017	0.726	0.000	0.000	LREF	3.4530 FEET
(RN3071)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3P	0.023	0.000	0.000	0.000	SREF	3.4530 FEET
(RN3171)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3P	0.014	0.000	0.000	0.000	XMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.900

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON

YAWING MOMENT COEFFICIENT, CYN (BODY AXIS)

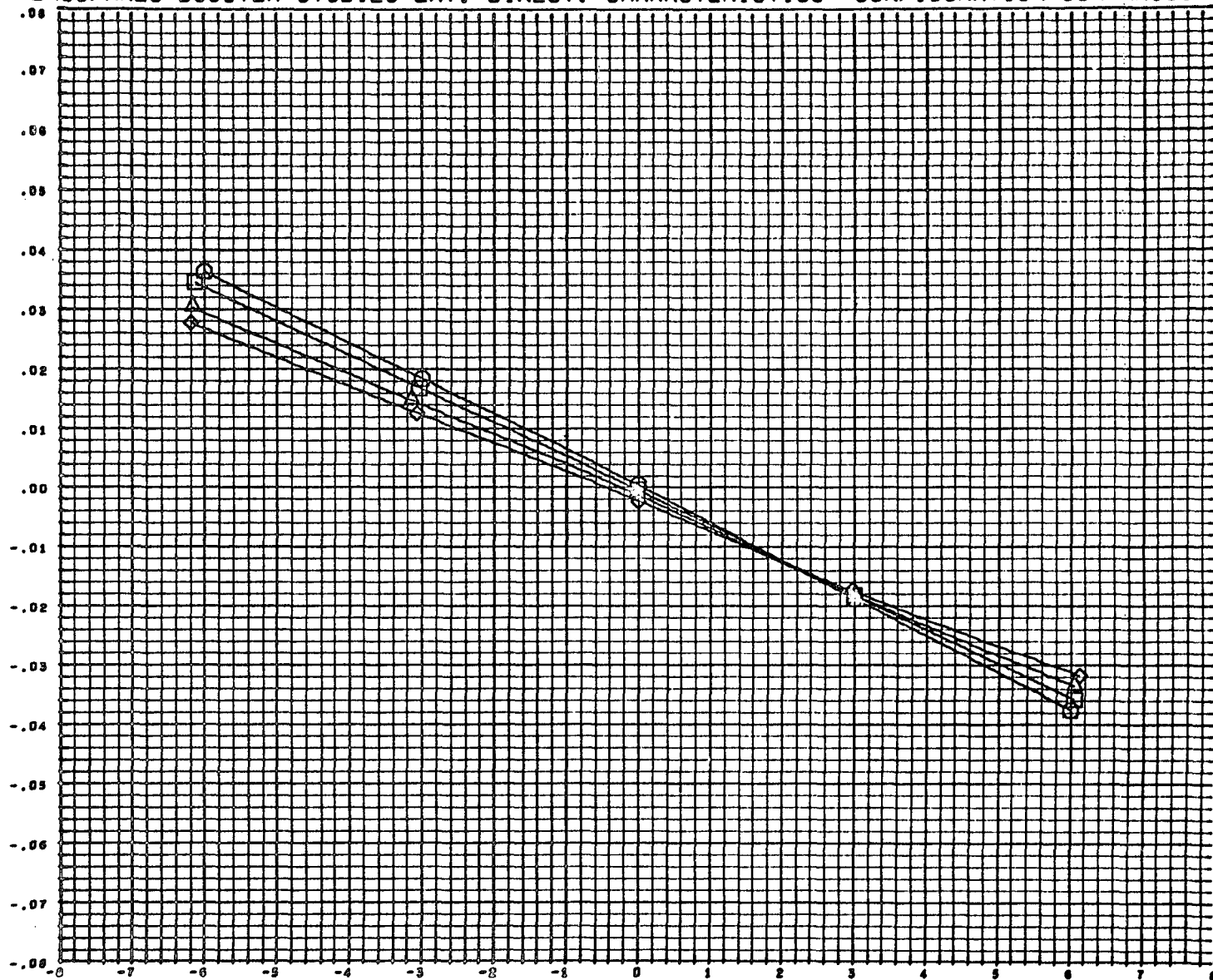


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION	
(AN3000)	MSRDC-3210,MSFC/LHSC BSTR.(PWR-ON) B1C2F2M1V1H3P	-0.017	0.726	0.000	0.000	BREF	1.3550 SQ.FT.
(RN3075)	MSRDC-3210,MSFC/LHSC BOOSTER B1C2F2M1V1E3P	-0.017	0.726	0.000	0.000	LREF	3.4530 FEET
(RN3071)	MSRDC-3210,MSFC/LHSC BOOSTER B1C2F2M1V1E3P	0.023	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3171)	MSRDC-3210,MSFC/LHSC BOOSTER B1C2F2M1V1E3P	0.014	0.000	0.000	0.000	XMRP	2.3050 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.800

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)

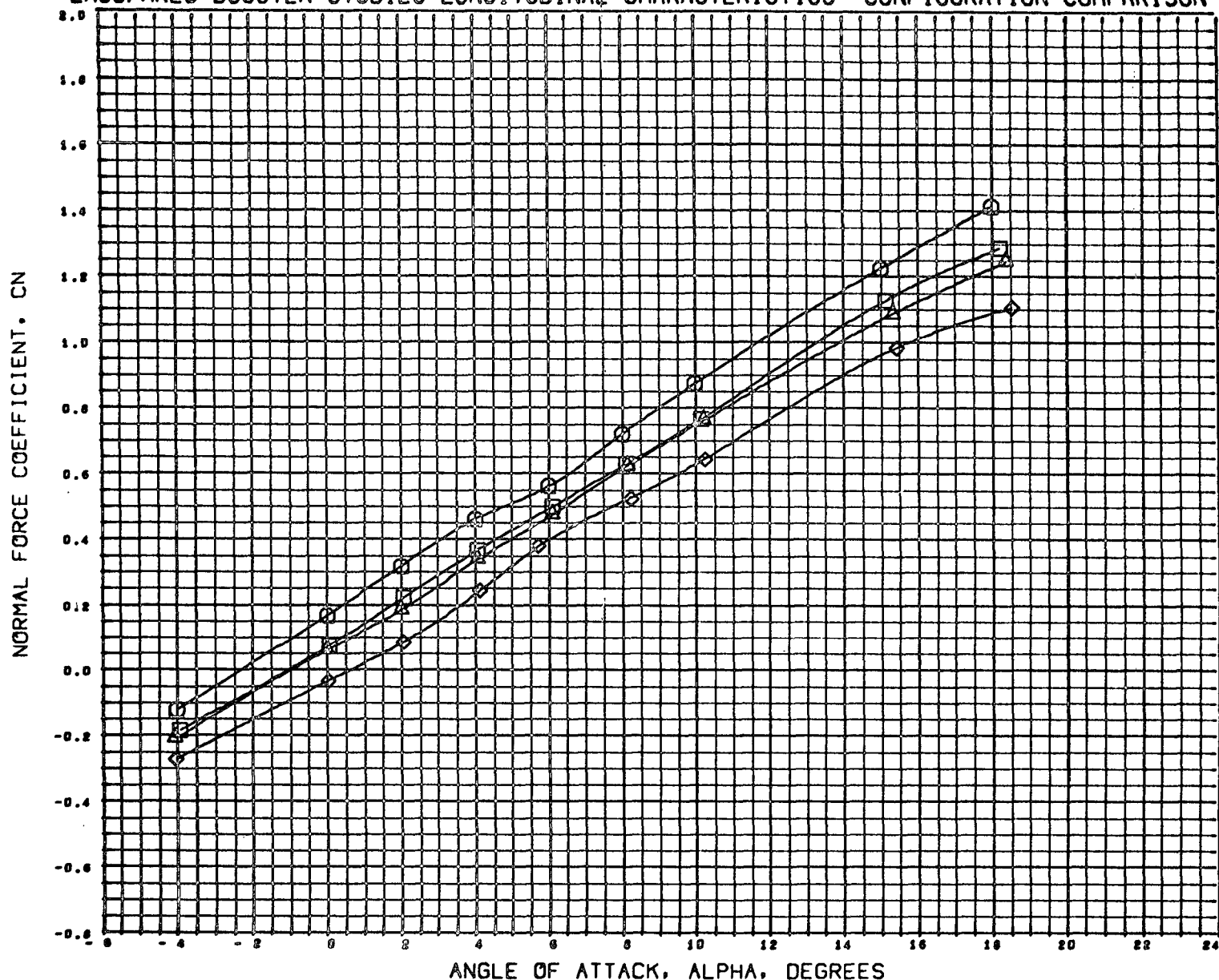


SIDE SLIP ANGLE, BETA, DEGREES

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	M3FLOW	ELEVTR	RUDDER	REFERENCE INFORMATION	
(AN3000)	□	H8RDC-3210, H8FC/LHSC BSTR. (PWR-ON) B1C2F2W1V1H3P	-0.017	0.726	0.000	0.000	SREF	1.3550 SQ. FT.
(RN3075)	△	H8RDC-3210, H8FC/LHSC BOOSTER B1C2F2W1V1E3P	-0.017	0.726	0.000	0.000	LREF	3.4530 FEET
(RN3071)	◇	H8RDC-3210, H8FC/LHSC BOOSTER B1C2F2W1V1E3P	0.023	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3171)	□	H8RDC-3210, H8FC/LHSC BOOSTER B1C2F2W1V1G3P	0.014	0.000	0.000	0.000	XMRP	2.5950 FEET
							YMRP	0.0000 FEET
							ZMRP	0.0107 FEET
							SCALE	0.0150 SCALE

MACH 0.900

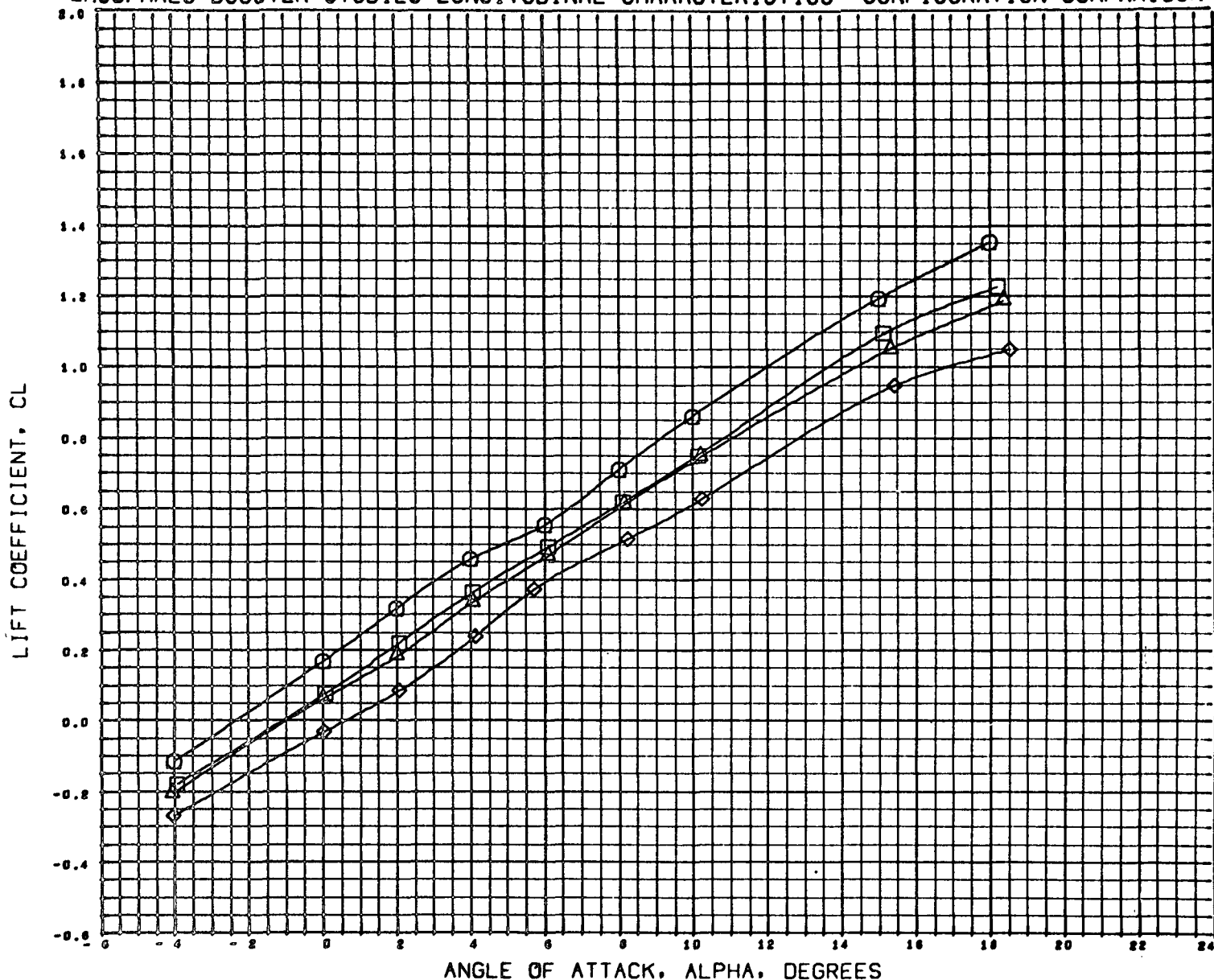
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300E)	MSRDC-3210,MSFC/LHSC BSTR.(PWR-ON) B1C2F2W1V1H3	0.763	0.000	0.000	0.000	SREF	1.3350 88.FT.
(AN3090)	MSRDC-3210,MSFC/LHSC BOOSTER B1C2F2W1V1E3	0.763	0.000	0.000	0.000	LREF	3.4530 FEET
(AN3086)	MSRDC-3210,MSFC/LHSC BOOSTER B1C2F2W1V1E3	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(AN3174)	MSRDC-3210,MSFC/LHSC BOOSTER B1C2F2W1V1E3	0.000	0.000	0.000	0.000	YMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0190 SCALE

WACH 0.400

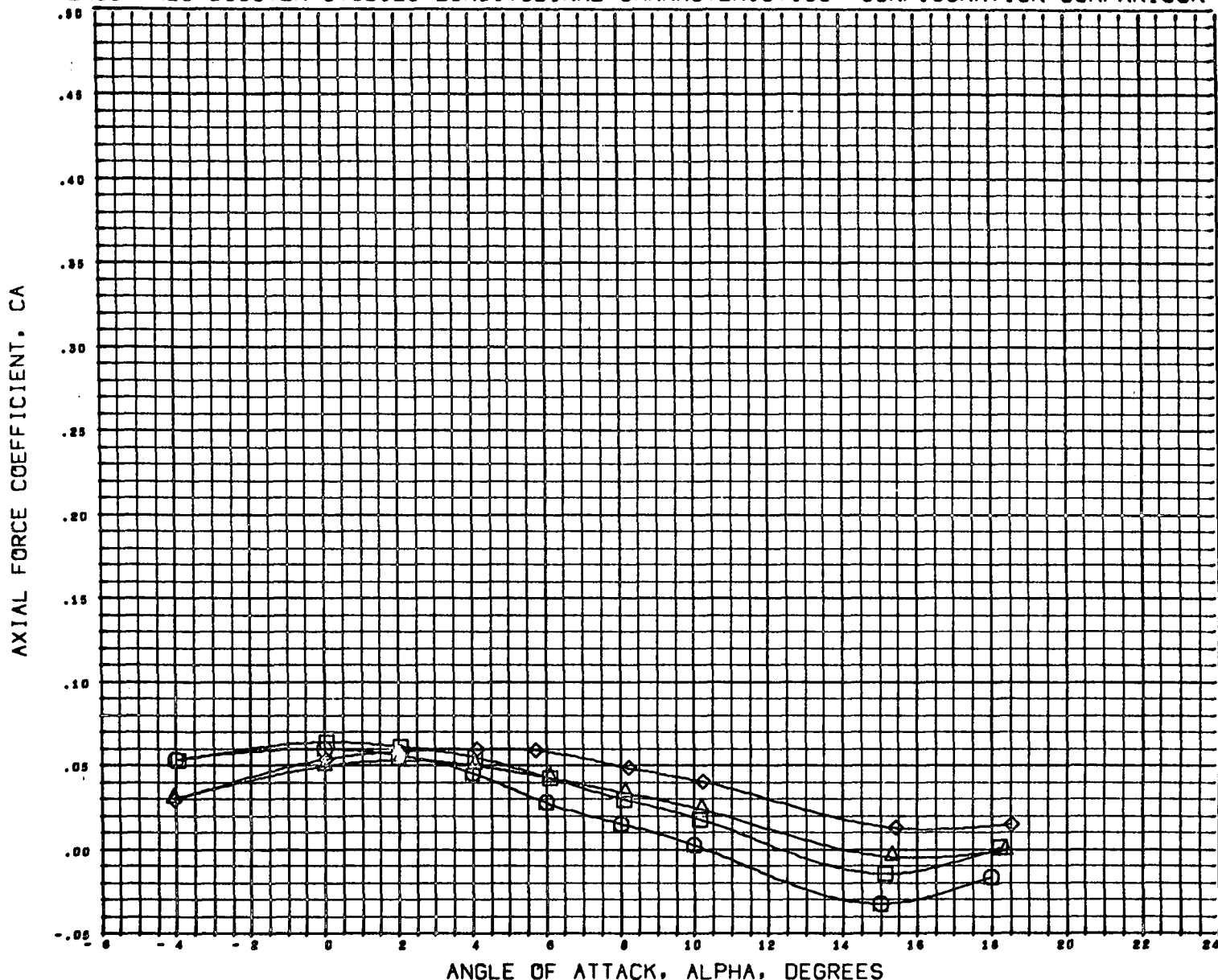
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300E)	MSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1M3	0.763	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(RN3090)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.763	0.000	0.000	0.000	LREF	3.4930 FEET
(RN3088)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.000	0.000	0.000	0.000	BREF	3.4930 FEET
(RN3174)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G3	0.000	0.000	0.000	0.000	XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.400

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

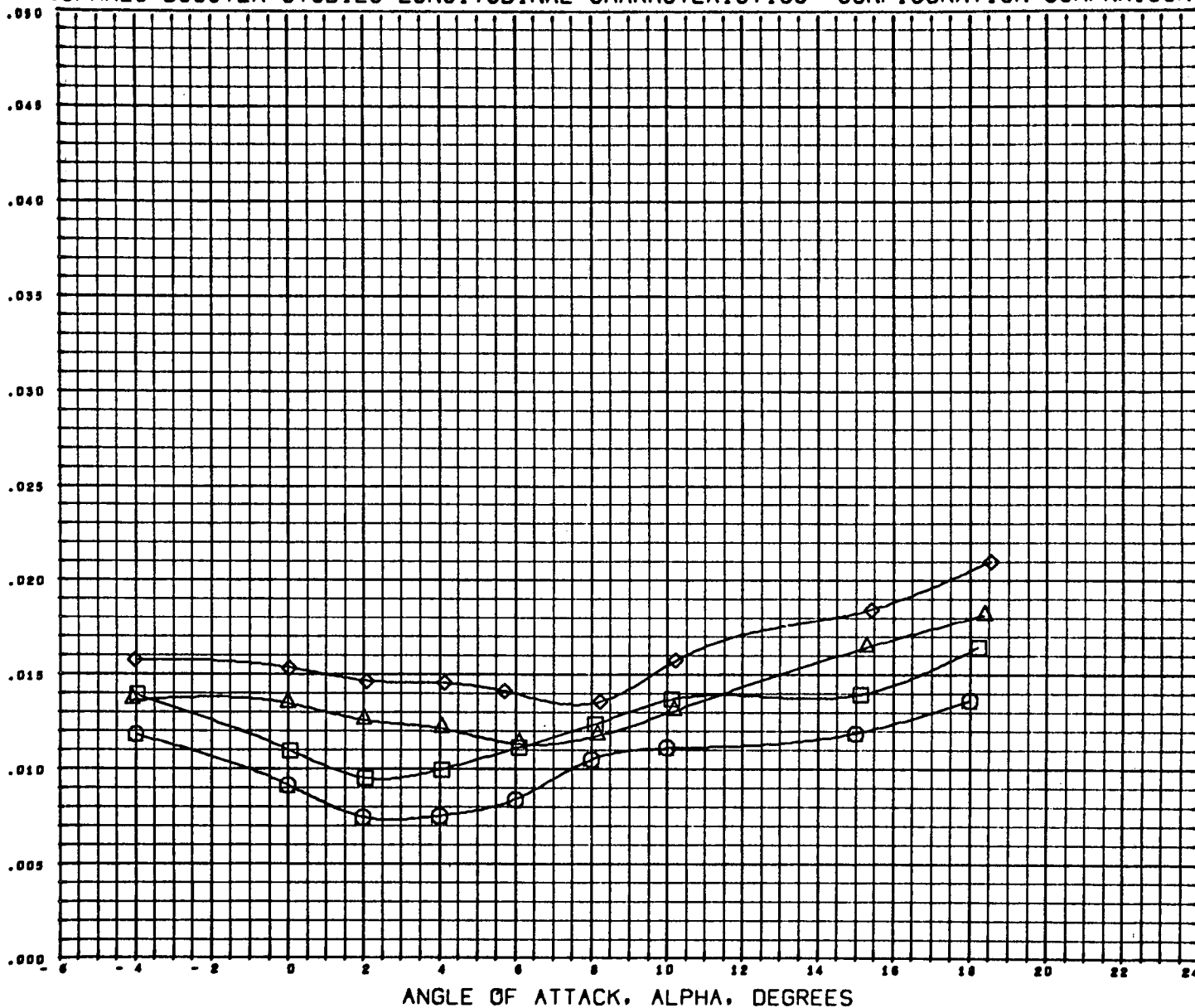


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300E)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3	0.763	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3090)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.763	0.000	0.000	0.000	LREF	3.4930 FEET
(RN3086)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.000	0.000	0.000	0.000	BREF	3.4930 FEET
(RN3174)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G3	0.000	0.000	0.000	0.000	XMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.400

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

BASE AXIAL FORCE COEFFICIENT, CAB

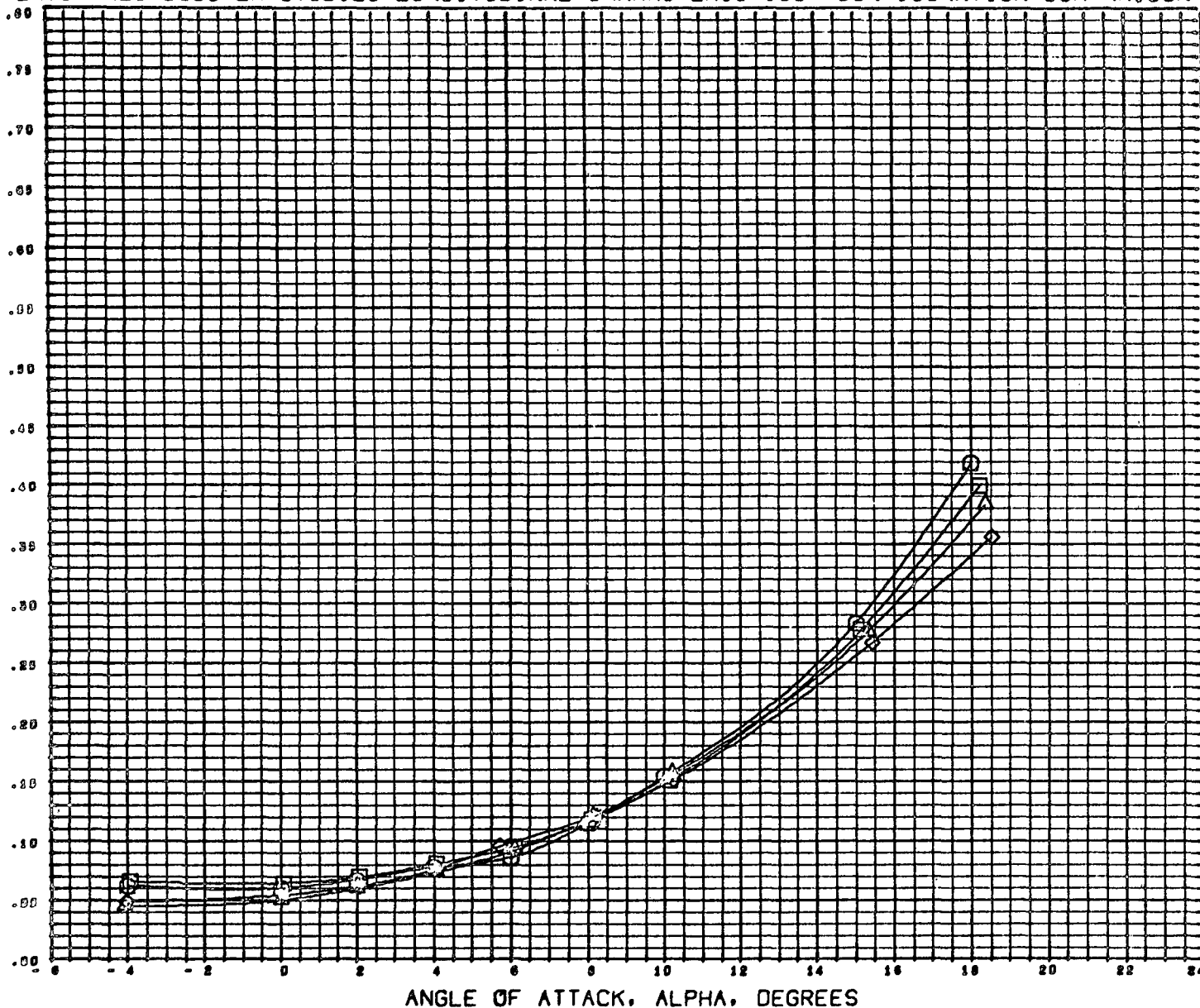


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300E)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3	0.763	0.000	0.000	0.000	SREF	1.3550 34.FT.
(RN3090)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.763	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3086)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3174)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.000	0.000	0.000	0.000	XHRP	2.5950 FEET
						YHRP	0.0000 FEET
						ZHRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.400

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

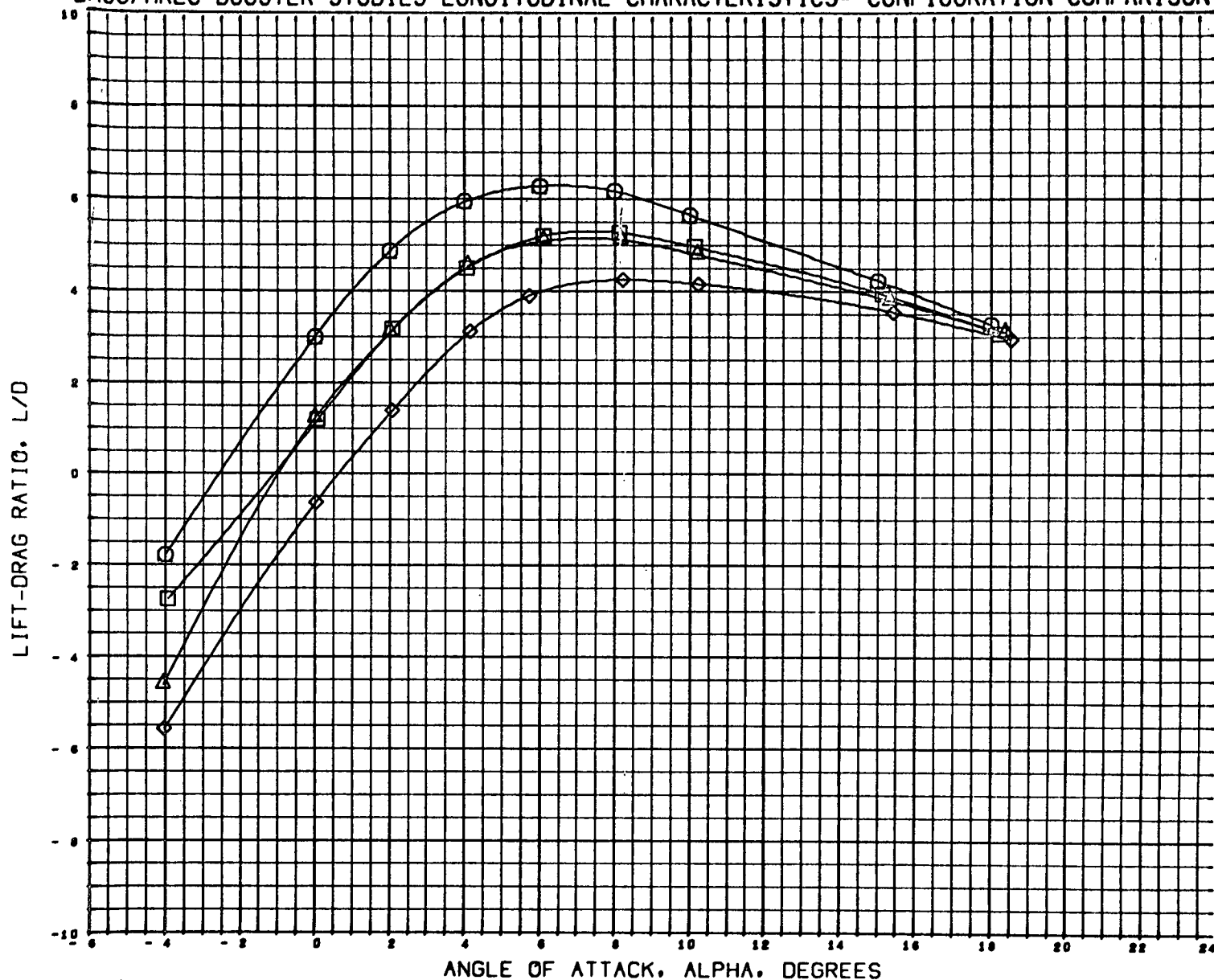
DRAG COEFFICIENT, CD



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	NSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(QNS00E)	NSRDC-3210, NSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H3	0.763	0.000	0.000	0.000	SREF	1.3550 50.FT.
(QNS000)	NSRDC-3210, NSFC/LMSC BOOSTER B1C2F2W1V1E3	0.763	0.000	0.000	0.000	LREF	3.4530 FEET
(QNS008)	NSRDC-3210, NSFC/LMSC BOOSTER B1C2F2W1V1E3	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(QNS174)	NSRDC-3210, NSFC/LMSC BOOSTER B1C2F2W1V1G3	0.000	0.000	0.000	0.000	XMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

WACH 0.400

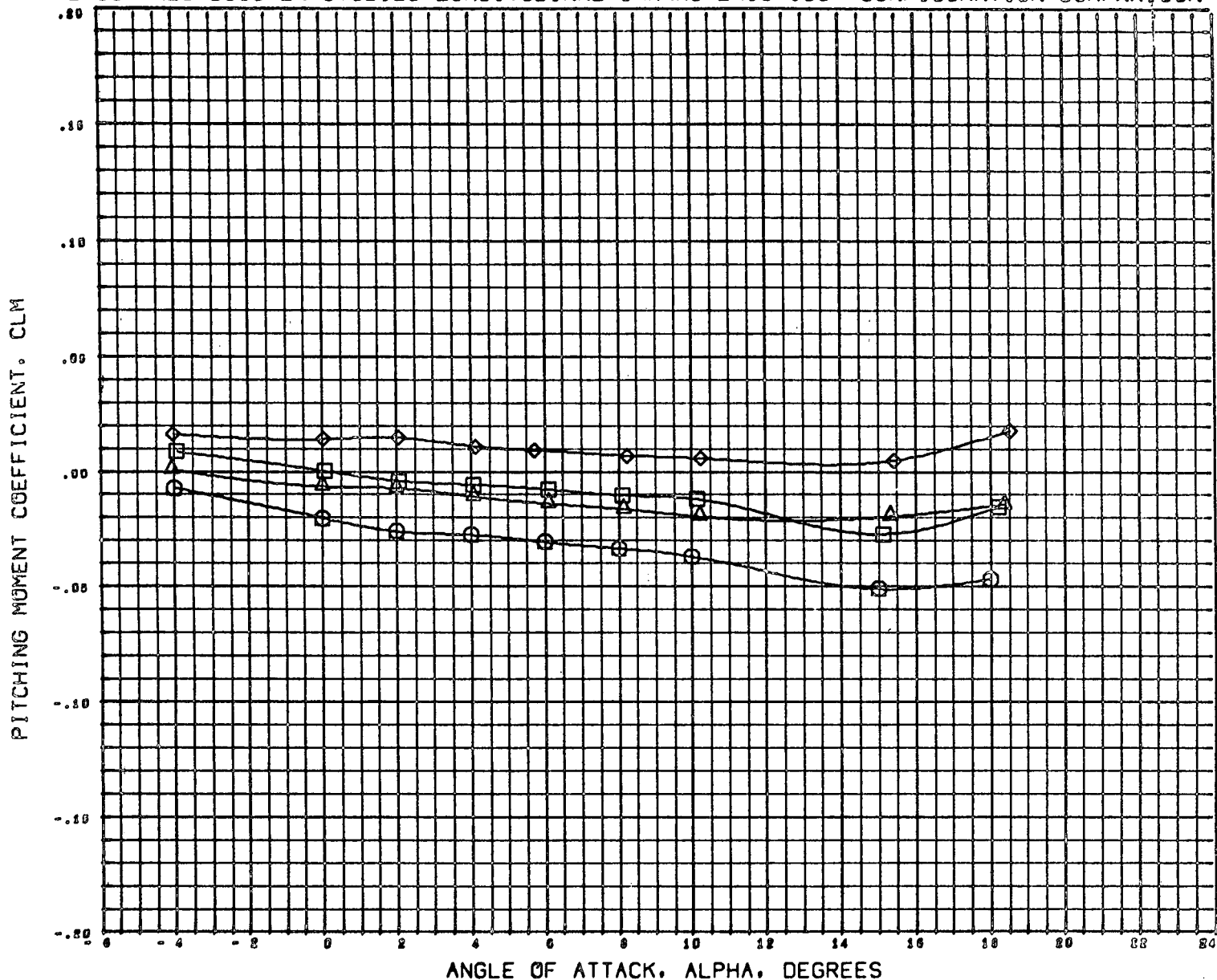
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(ANS00E)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3	0.763	0.000	0.000	0.000	SREF	1.3550 84.FT.
(RNS090)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.763	0.000	0.000	0.000	LREF	3.4930 FEET
(RNS066)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.000	0.000	0.000	0.000	BREF	3.4930 FEET
(RNS174)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.000	0.000	0.000	0.000	XMRF	2.5950 FEET
						YMRF	0.0000 FEET
						ZMRF	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.400

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

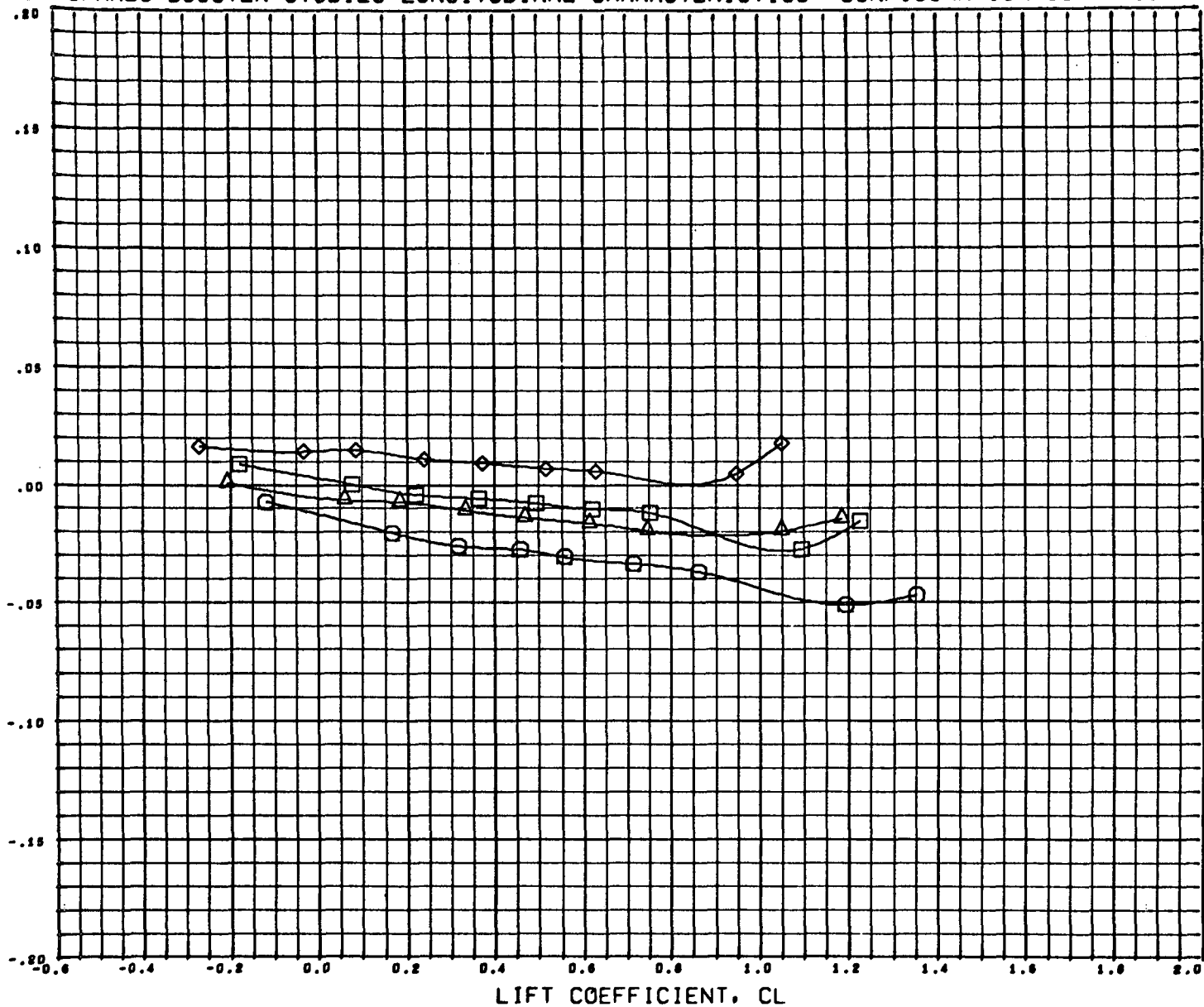


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(QNS008)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3	0.763	0.000	0.000	0.000	SREF	1.3950 80.FY.
(QNS009)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.763	0.000	0.000	0.000	LREF	3.4530 FEET
(QNS006)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.000	0.000	0.000	0.000	SREF	3.4530 FEET
(QNS174)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G3	0.000	0.000	0.000	0.000	XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0190 SCALE

MACH 0.400

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

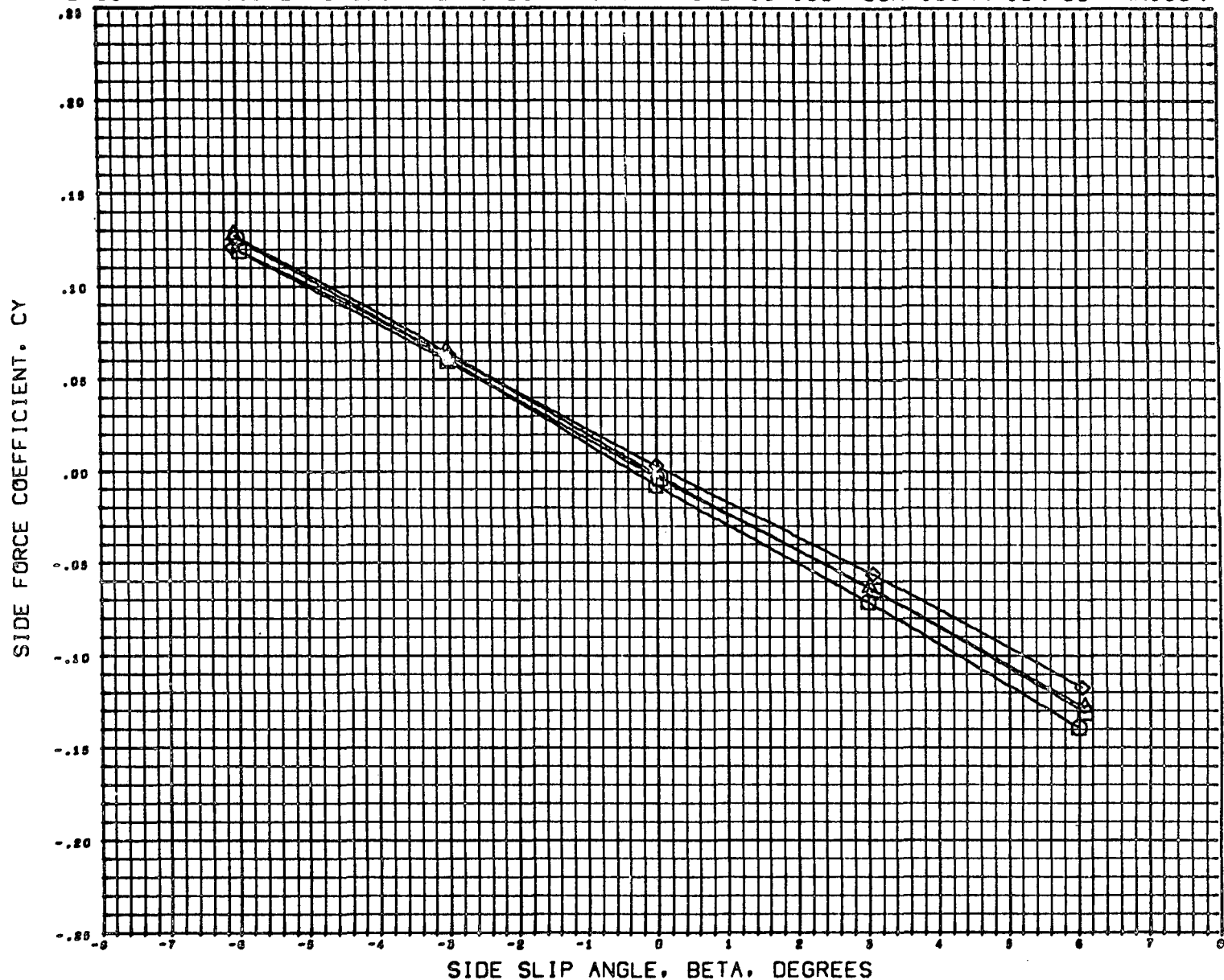
PITCHING MOMENT COEFFICIENT, CLM



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300E)	MSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H3	0.763	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3090)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.763	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3086)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3174)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G3	0.000	0.000	0.000	0.000	XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.400

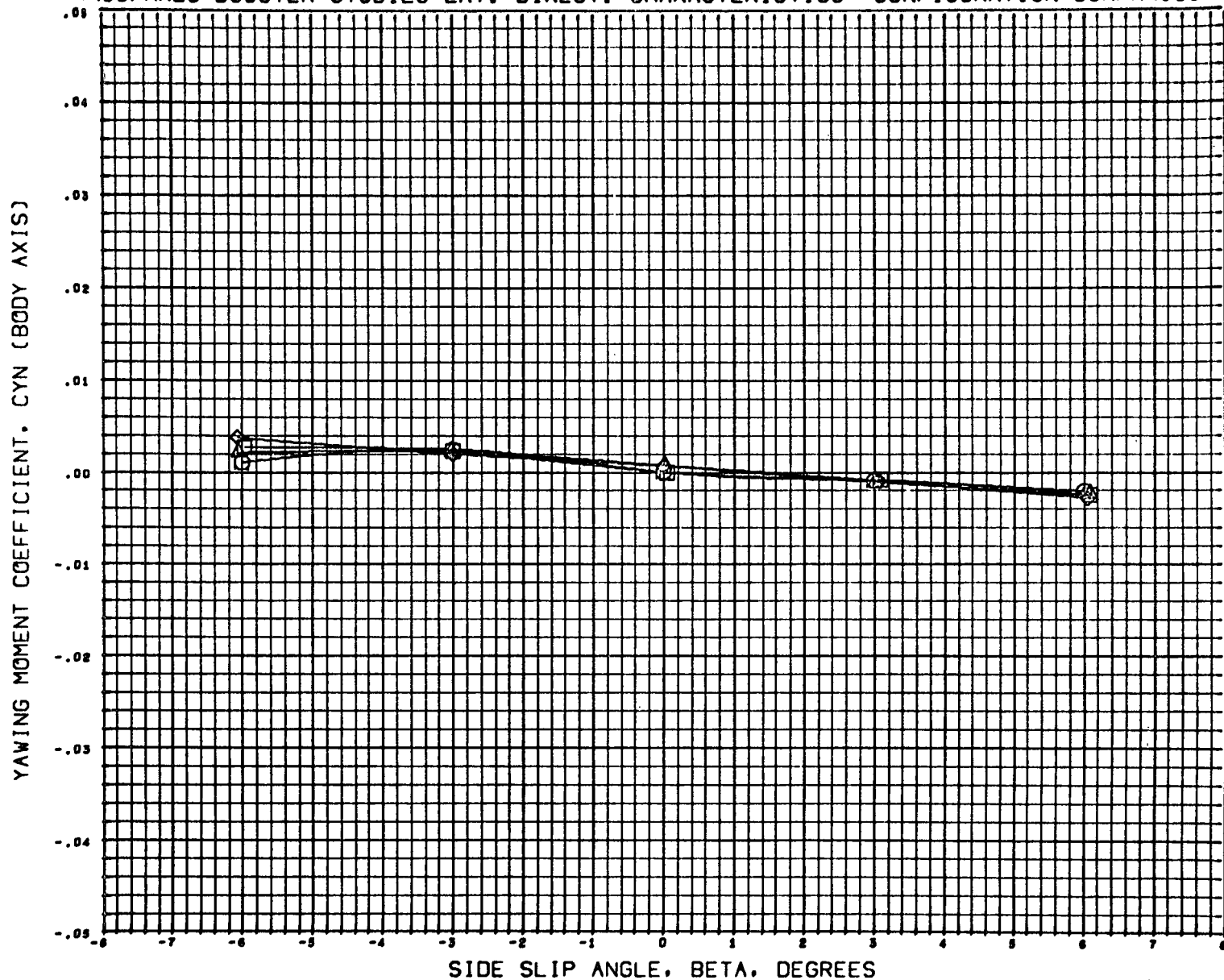
LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION	
(RNS006)	MSRDC-3210,MSFC/LH8C BSTR.(PWR-ON) B1C2F2W1V1H3	-0.015	0.763	0.000	0.000	SREF	1.3550 SQ.FT.
(RNS001)	MSRDC-3210,MSFC/LH8C BOOSTER B1C2F2W1V1E3	-0.015	0.763	0.000	0.000	LREF	3.4530 FEET
(RNS007)	MSRDC-3210,MSFC/LH8C BOOSTER B1C2F2W1V1E3	0.044	0.000	0.000	0.000	BREF	3.4530 FEET
(RNS175)	MSRDC-3210,MSFC/LH8C BOOSTER B1C2F2W1V1G3	0.033	0.000	0.000	0.000	XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0107 FEET
						SCALE	0.0150 SCALE

SCALE 0.400

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON

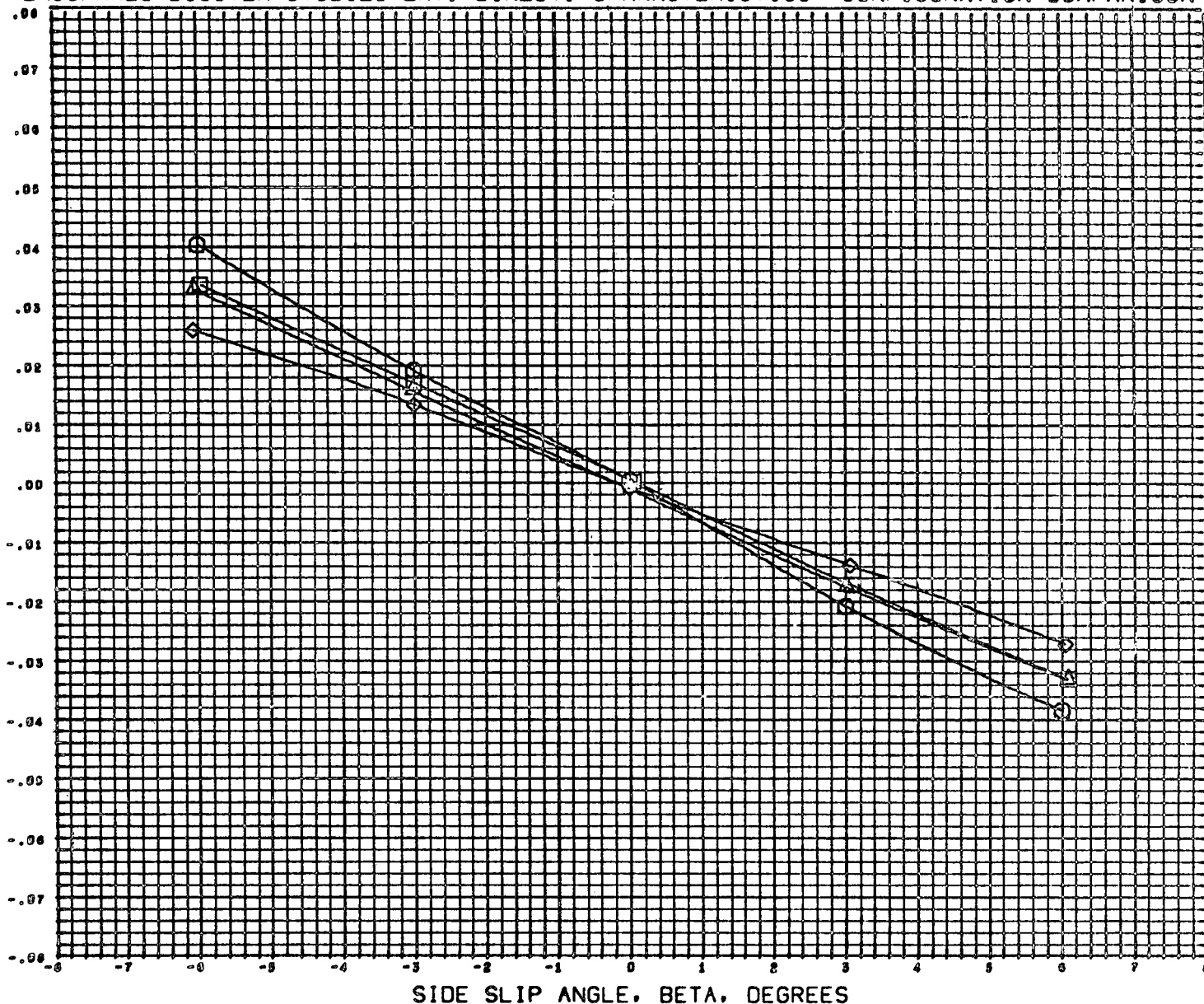


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION	
(AN3006)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3	-0.015	0.763	0.000	0.000	SREF	1.3580 80.FT.
(RN3001)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	-0.015	0.763	0.000	0.000	LREF	3.4530 FEET
(RN3007)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.044	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3175)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G3	0.053	0.000	0.000	0.000	XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.400

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON

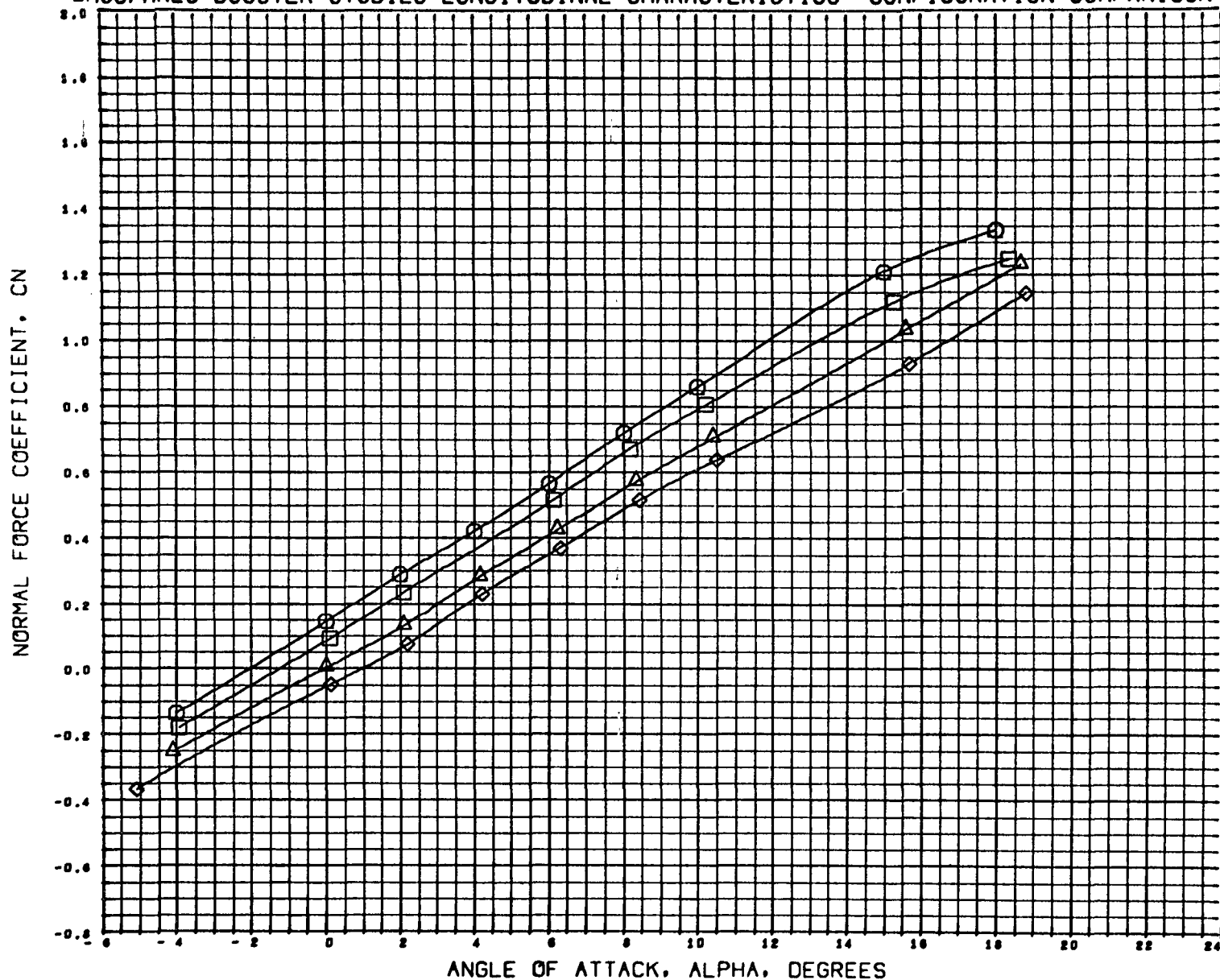
ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION	
(AN3006)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V3M3	-0.015	0.763	0.000	0.000	SREF	1.3550 00.FT.
(AN3001)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	-0.015	0.763	0.000	0.000	LREF	3.4530 FEET
(AN3007)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.044	0.000	0.000	0.000	DREF	3.4530 FEET
(AN3170)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G3	0.053	0.000	0.000	0.000	XMRP	2.9990 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

WACH 0.400

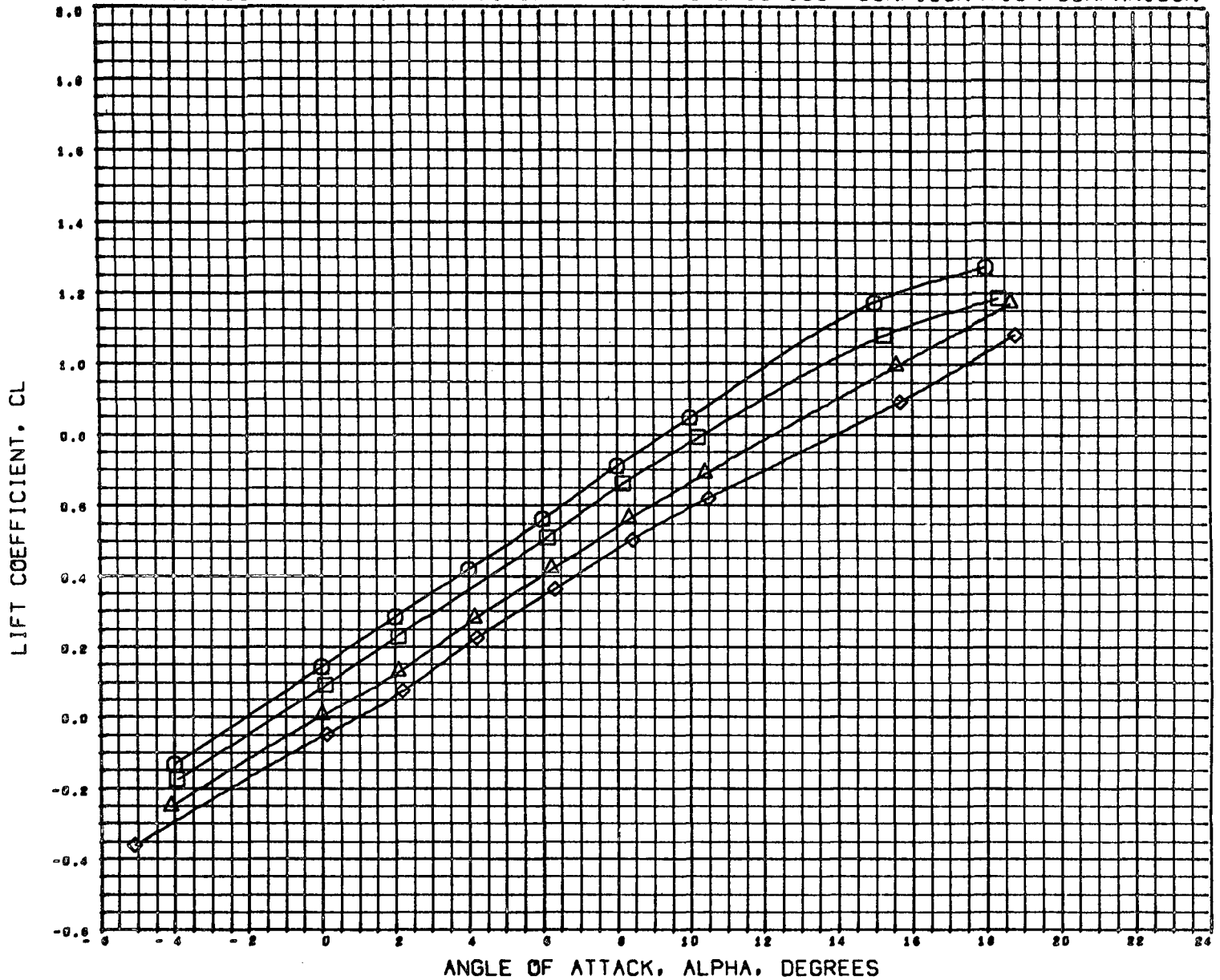
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300F)	MSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H3	0.760	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(RN3098)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.760	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3094)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3178)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G3	0.000	0.000	0.000	0.000	XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.500

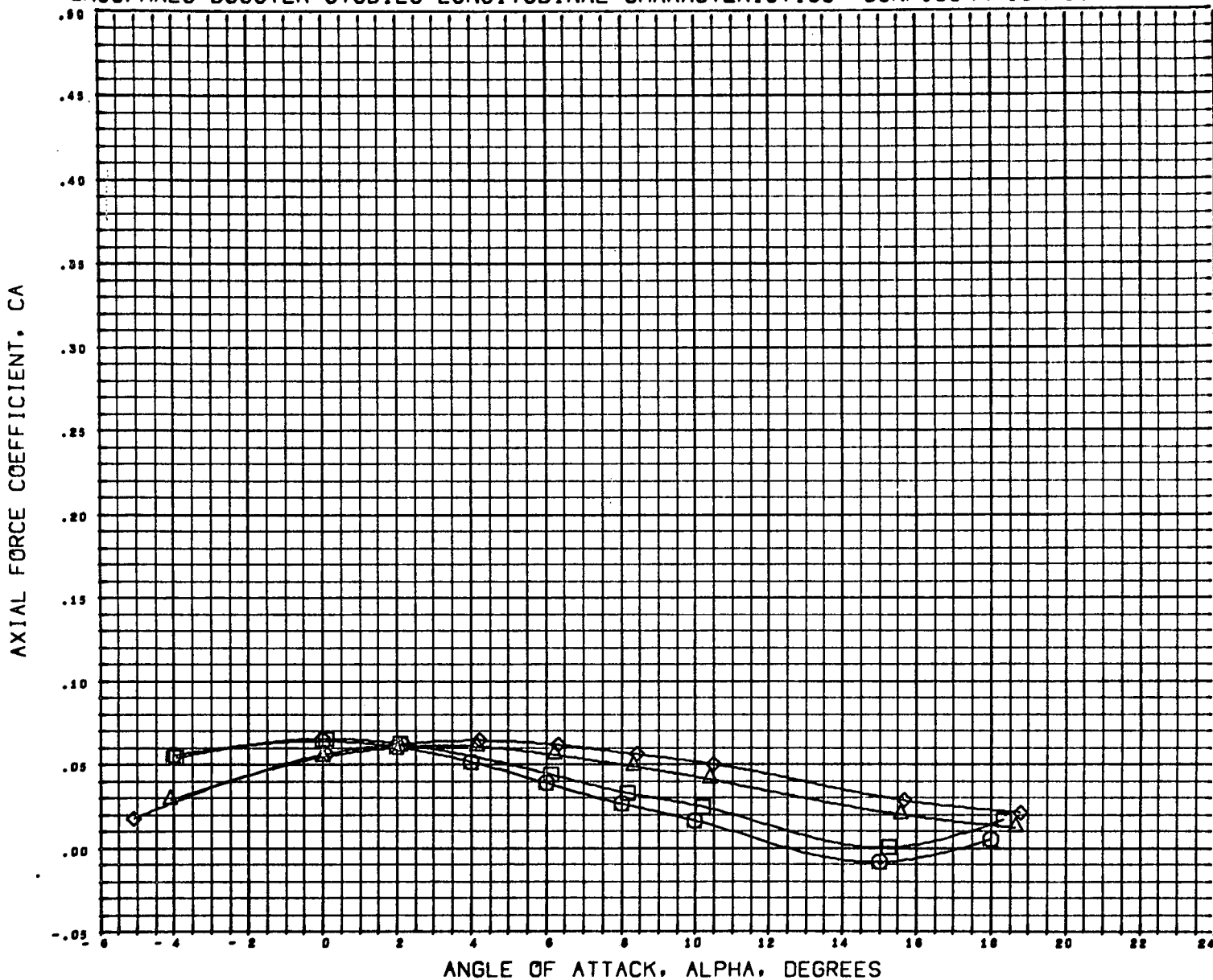
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300F)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3	0.760	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(AN300B)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.760	0.000	0.000	0.000	LREF	3.4530 FEET
(AN300A)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(AN317B)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G3	0.000	0.000	0.000	0.000	XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0190 SCALE

MACH 0.300

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

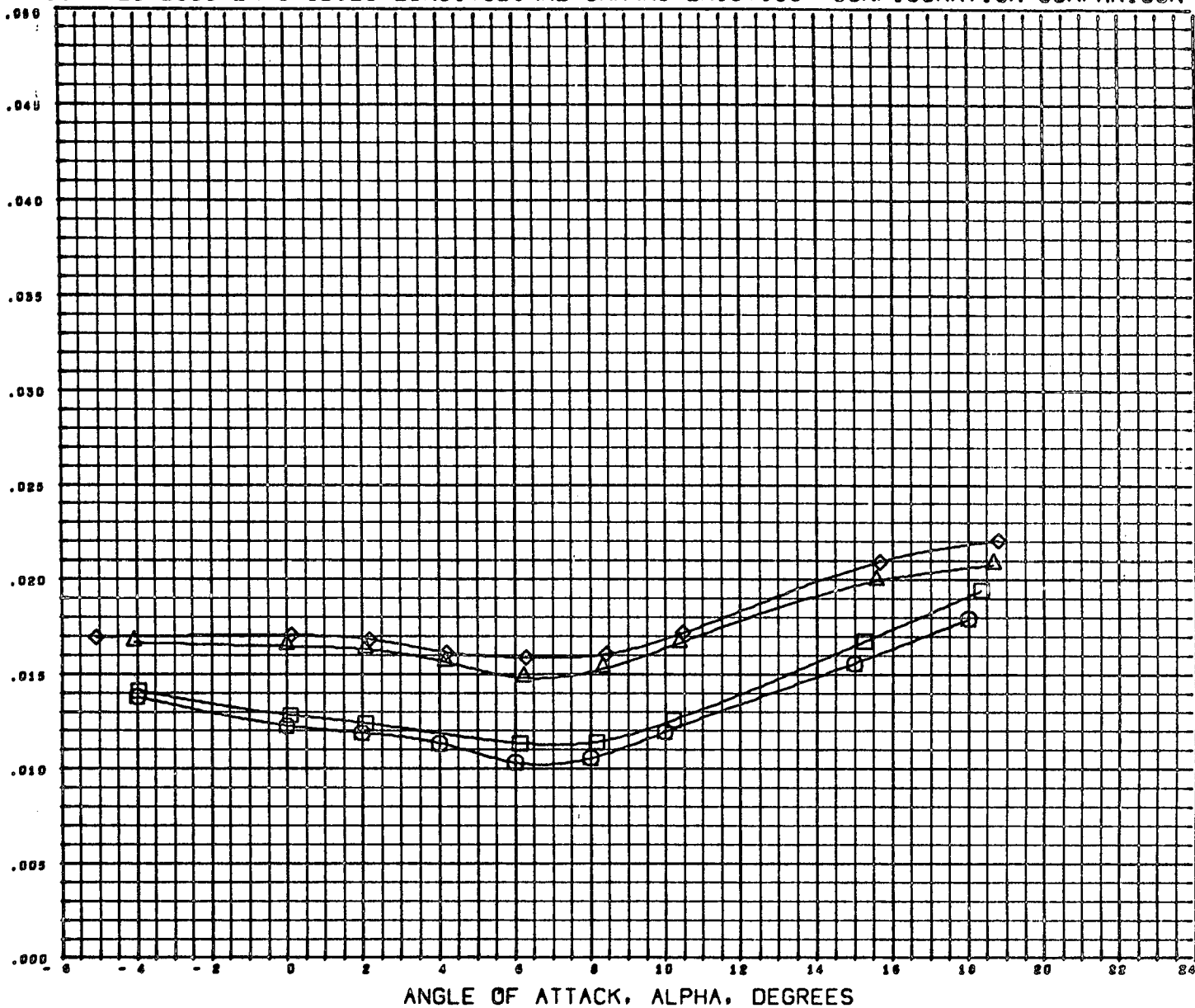


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	M8FLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300F)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3	0.760	0.000	0.000	0.000	SREF	1.3550 80.FT.
(RN3090)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.760	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3094)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3170)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G3	0.000	0.000	0.000	0.000	XMRP	2.3950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.900

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

BASE AXIAL FORCE COEFFICIENT, CAB

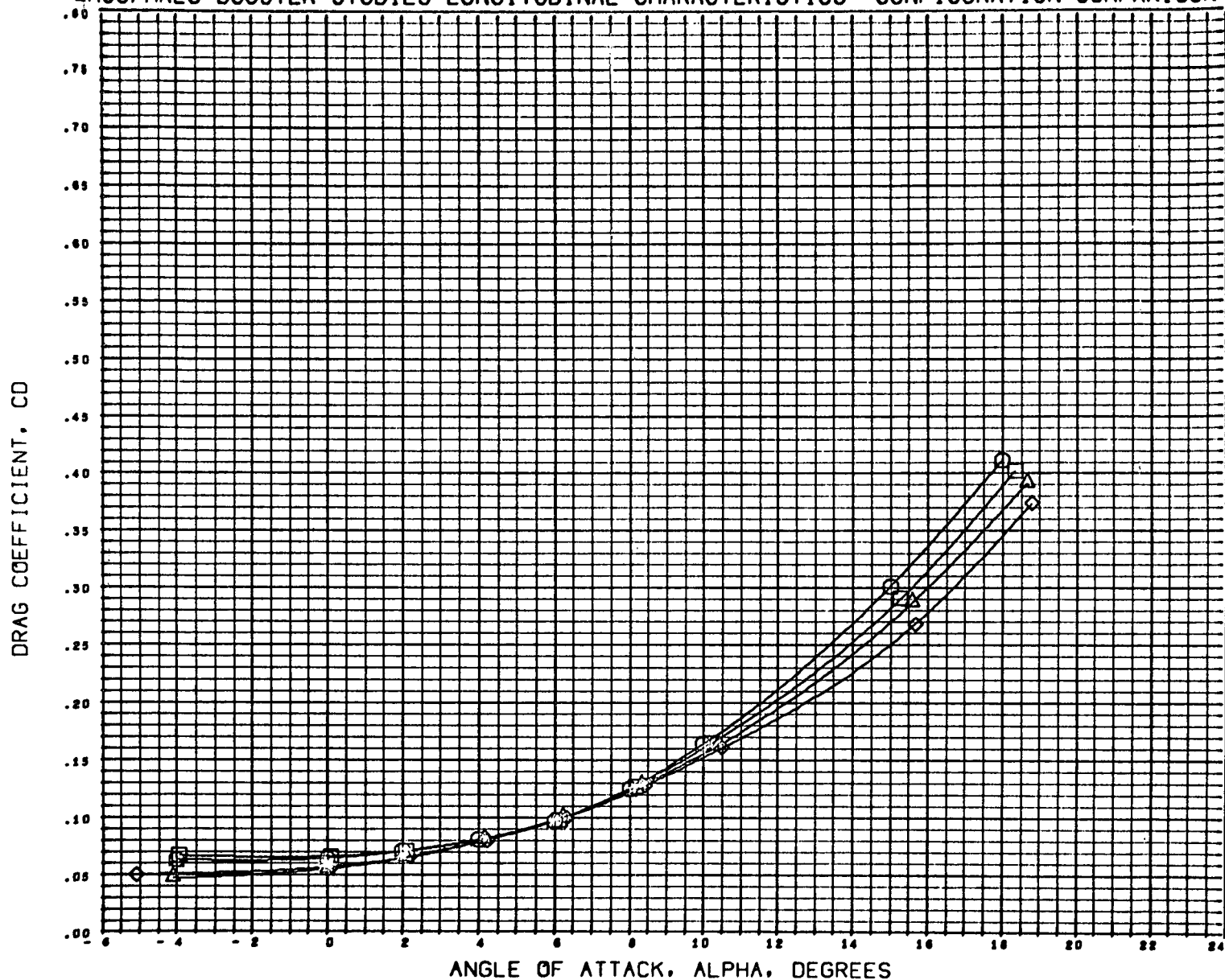


ANGLE OF ATTACK, ALPHA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300F)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3	0.760	0.000	0.000	0.000	SREF	1.3950 80.FT.
(RN3000)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.760	0.000	0.000	0.000	LREF	3.4930 FEET
(RN3004)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.000	0.000	0.000	0.000	BREF	3.4930 FEET
(RN3178)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G3	0.000	0.000	0.000	0.000	YMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.900

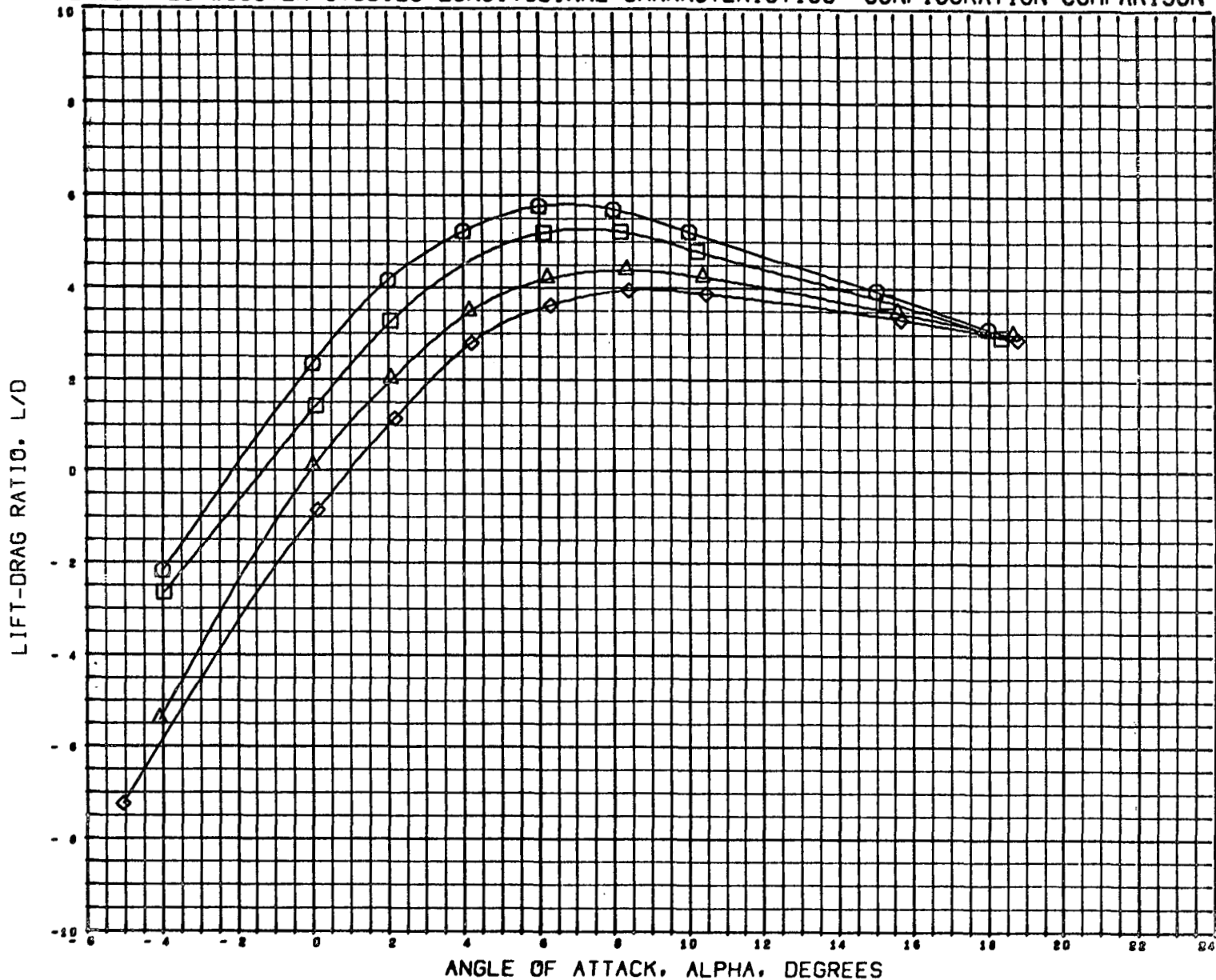
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300F)	N8RDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H3	0.760	0.000	0.000	0.000	SREF	1.3550 88. FT.
(RN3098)	N8RDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.760	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3094)	N8RDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3178)	N8RDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G3	0.000	0.000	0.000	0.000	XMRP	2.9650 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.500

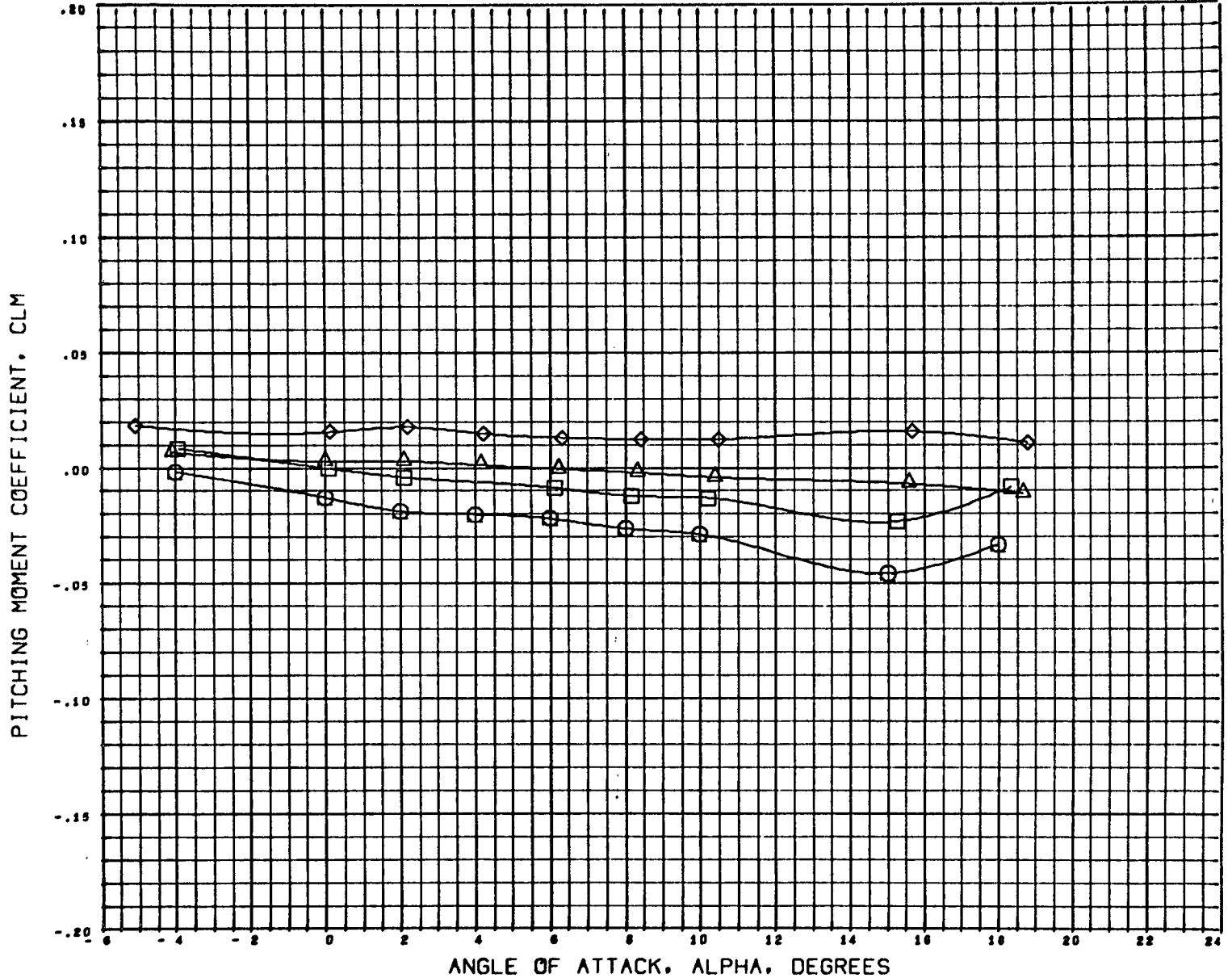
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300F)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3	0.760	0.000	0.000	0.000	SREF	1.3550 80.FT.
(RN3098)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.760	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3094)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3178)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G3	0.000	0.000	0.000	0.000	XMRP	2.3950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.500

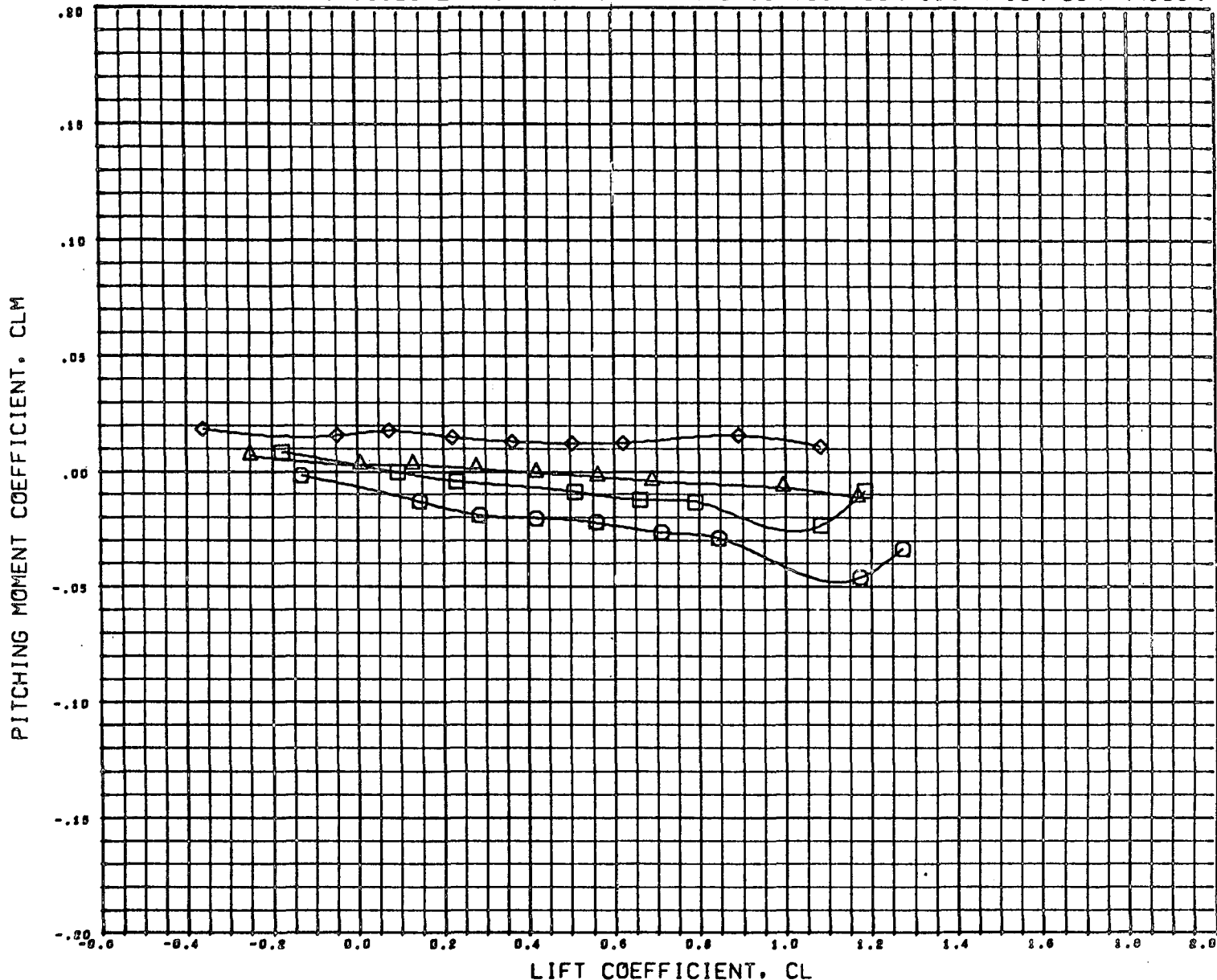
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300F)	MSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H3	0.760	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(RN3098)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.760	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3094)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3178)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G3	0.000	0.000	0.000	0.000	XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.900

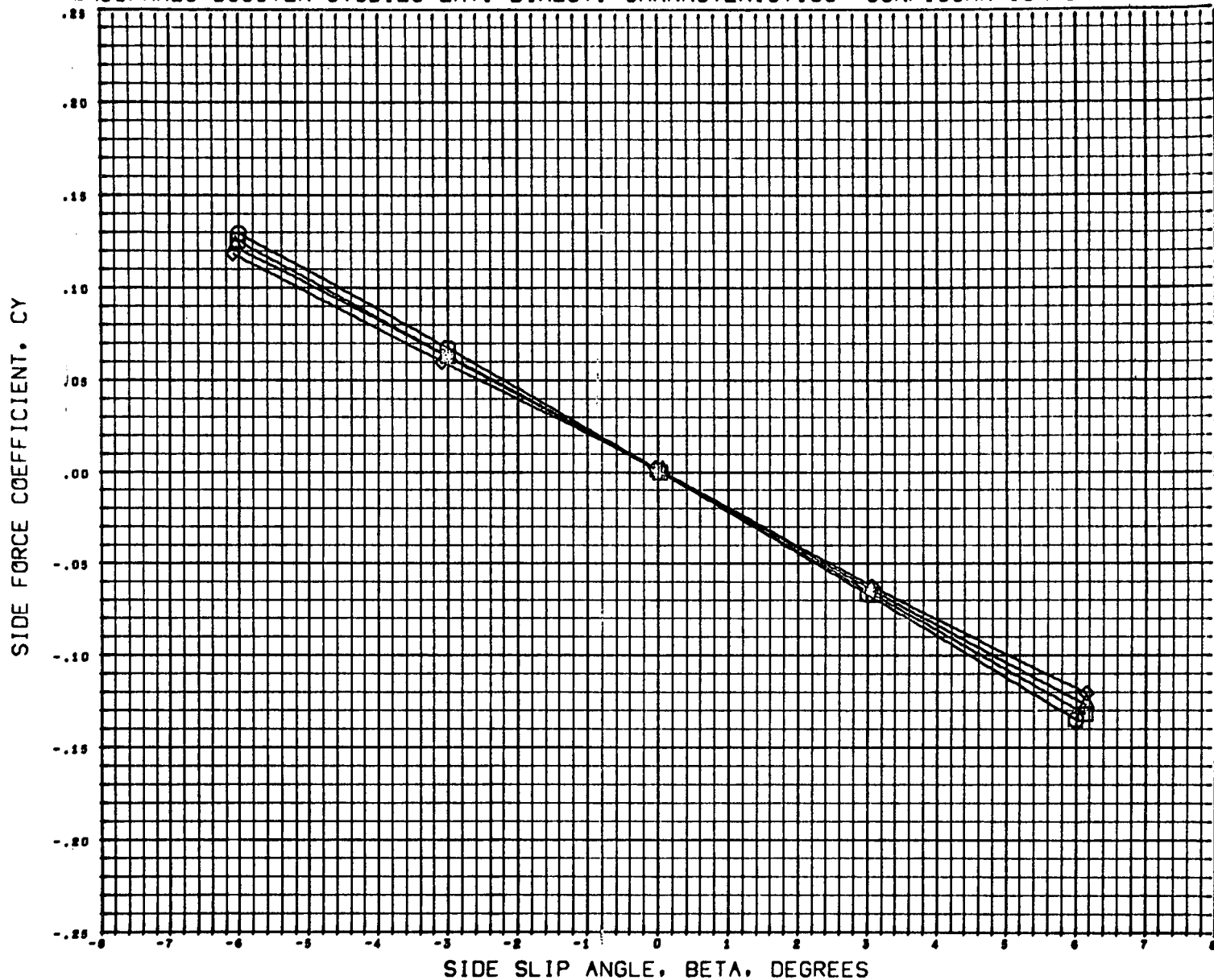
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300F)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3	0.760	0.000	0.000	0.000	SREF	1.3550 80.FT.
(RN3006)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.760	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3004)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3170)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G3	0.000	0.000	0.000	0.000	XMHP	2.3950 FEET
						YMHP	0.0000 FEET
						ZMHP	0.0107 FEET
						SCALE	0.0150 SCALE

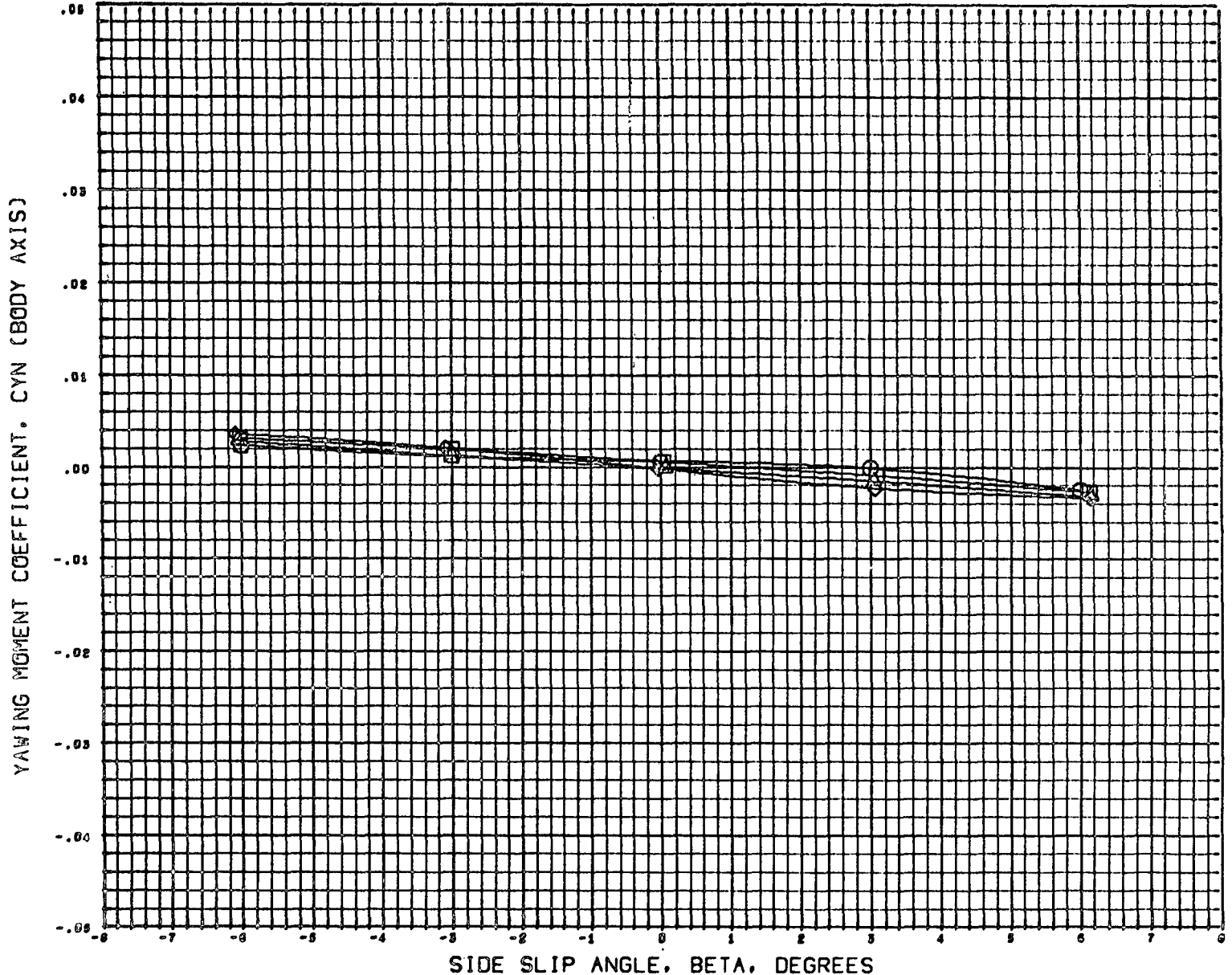
NAC(1) 0.500

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION	
(AM300H)	N8RDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H3	-0.003	0.749	0.000	0.000	SREF	1.3550 80.FT.
(AM3099)	N8RDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	-0.003	0.749	0.000	0.000	LREF	3.4530 FEET
(AM3095)	N8RDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.072	0.000	0.000	0.000	BREF	3.4530 FEET
(AM3179)	N8RDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G3	0.074	0.000	0.000	0.000	XNRP	2.5950 FEET
						YNRP	0.0000 FEET
						ZNRP	0.0167 FEET
						SCALE	0.0190 SCALE
MACH 0.500							

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON

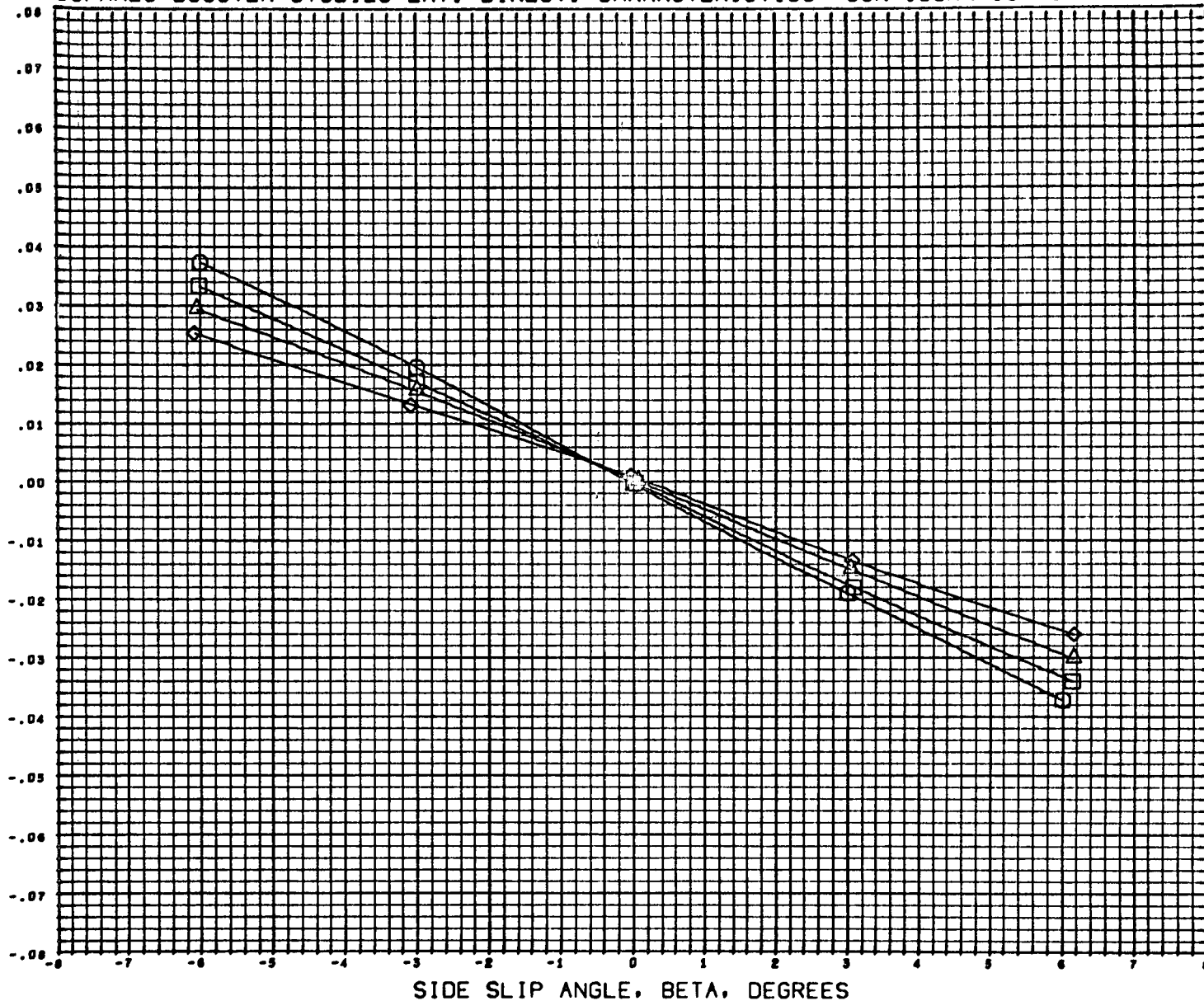


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION	
(AN300N)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3	-0.003	0.749	0.000	0.000	SREF	1.3550 SQ.FT.
(AN300P)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	-0.003	0.749	0.000	0.000	LREF	3.4930 FEET
(AN300S)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.072	0.000	0.000	0.000	SREF	3.4930 FEET
(AN3017)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G3	0.074	0.000	0.000	0.000	XHRP	2.5930 FEET
						YHRP	0.0000 FEET
						ZHRP	0.0107 FEET
						SCALE	0.0150 SCALE

MACH 0.900

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON

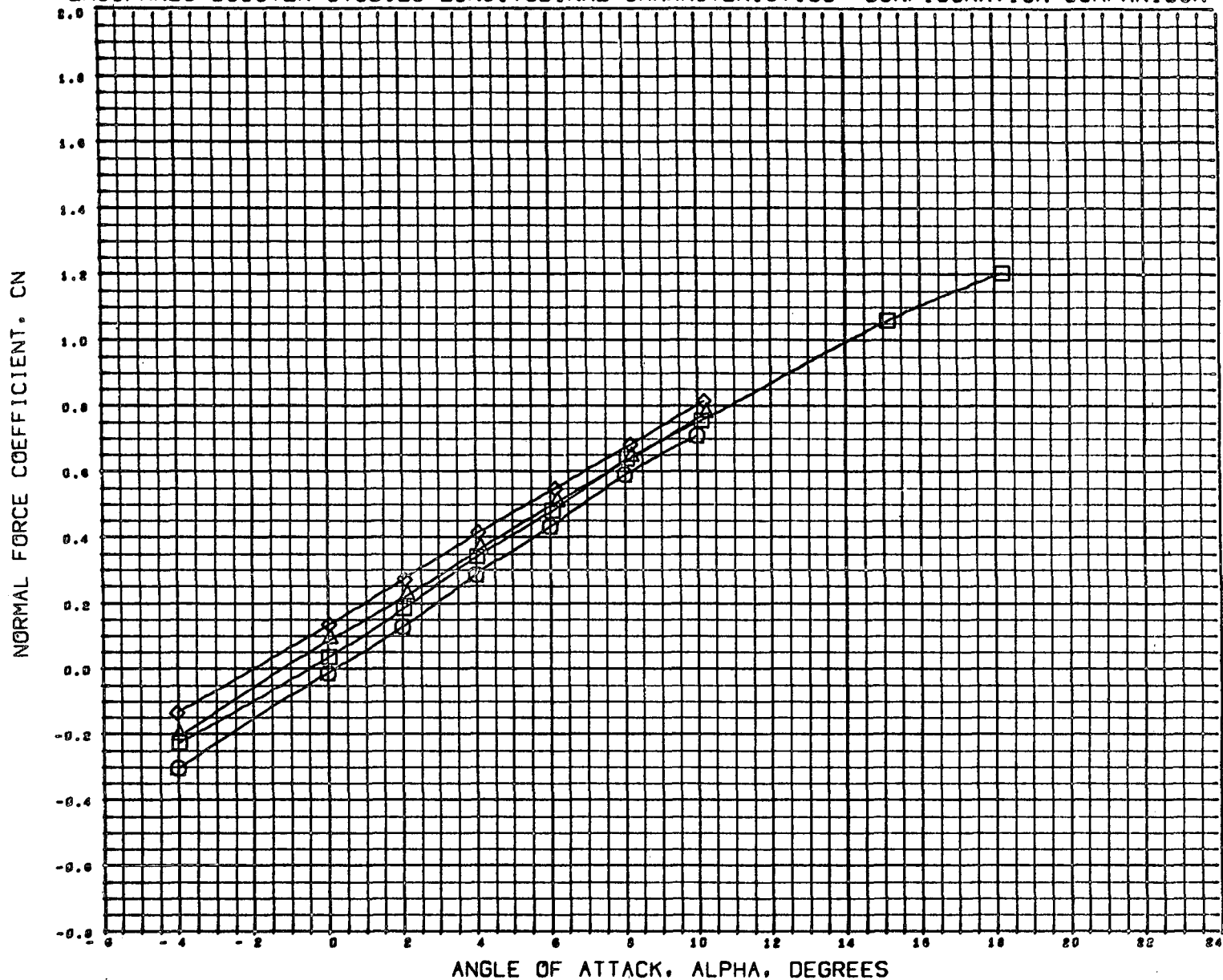
ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION	
(AN300H)	MSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H3	-0.003	0.749	0.000	0.000	SREF	1.3550 90.FT.
(RN3099)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E3	-0.003	0.749	0.000	0.000	LREF	3.4530 FEET
(RN3095)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E3	0.072	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3179)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G3	0.074	0.000	0.000	0.000	XHRP	2.5950 FEET
						YHRP	0.0000 FEET
						ZHRP	0.0107 FEET
						SCALE	0.0150 SCALE

MACH 0.500

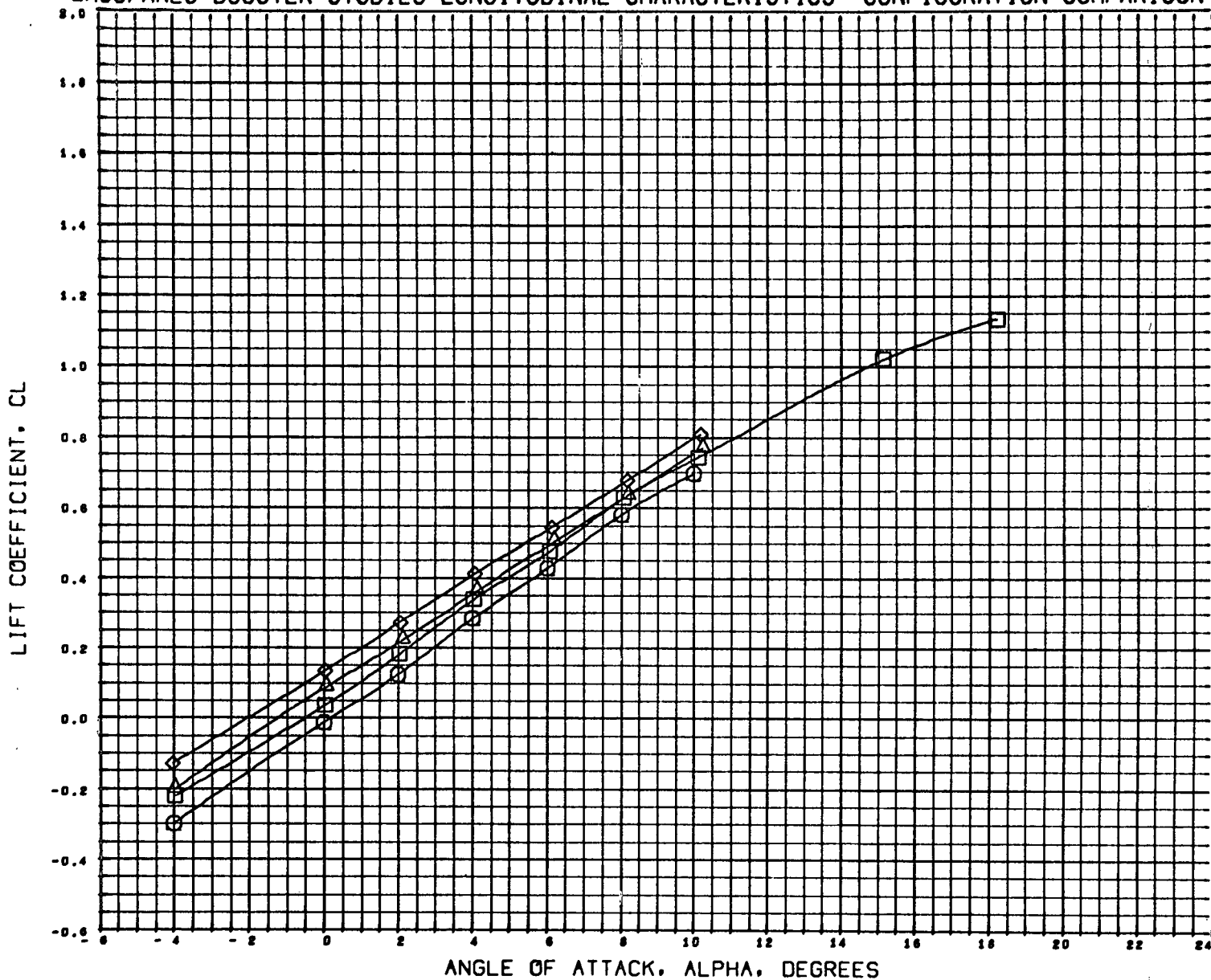
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	M8FLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN3001)	M8RDC-3210, M8FC/LM8C BSTR. (PWR-ON) B1C2F2W1V1H4	0.780	0.000	0.000	0.000	SREF	1.3550 00.FT.
(RMS106)	M8RDC-3210, M8FC/LM8C BOOSTER B1C2F2W1V1E4	0.780	0.000	0.000	0.000	LREF	3.4530 FEET
(RMS108)	M8RDC-3210, M8FC/LM8C BOOSTER B1C2F2W1V1E4	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RMS104)	M8RDC-3210, M8FC/LM8C BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	XMRP	2.5930 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0180 SCALE

MACH 0.400

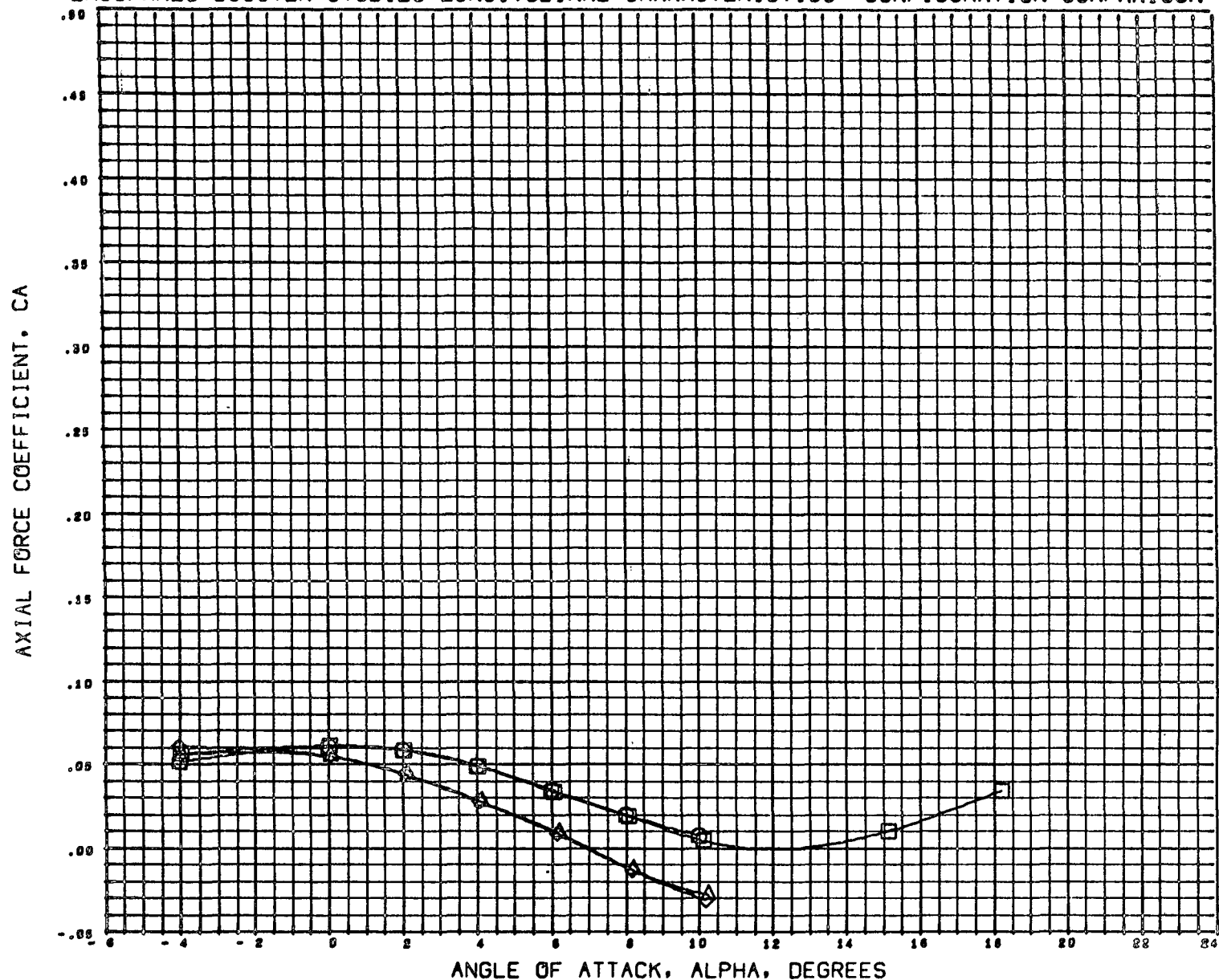
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN3001)	NSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1M4	0.780	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3100)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.780	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3102)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3104)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	XMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.400

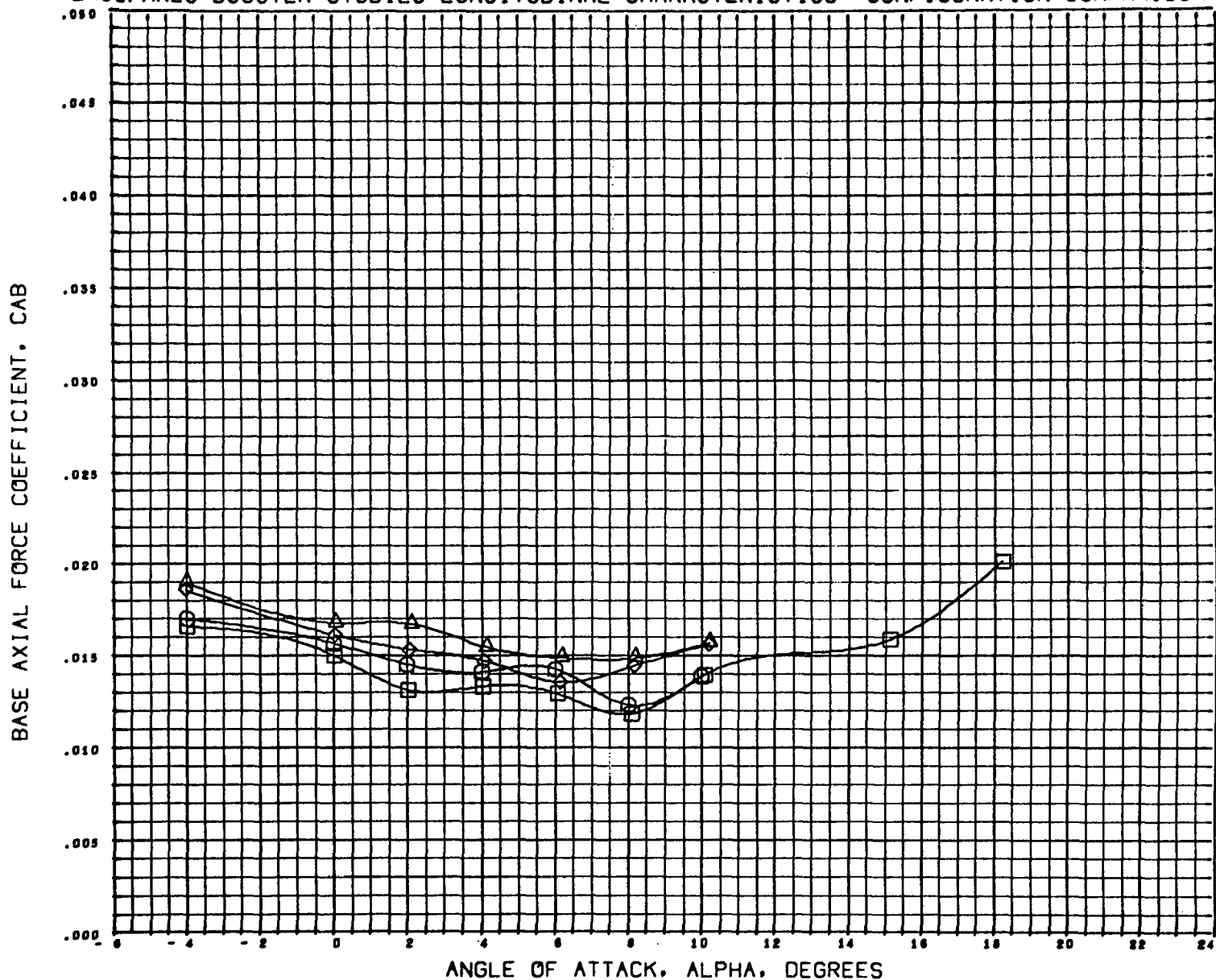
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN3001)	MSRDC-3210,MSFC/LHSC BSTR.(PWR-ON) B1C2F2W1V1H4	0.780	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3106)	MSRDC-3210,MSFC/LHSC BOOSTER B1C2F2W1V1E4	0.780	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3102)	MSRDC-3210,MSFC/LHSC BOOSTER B1C2F2W1V1E4	0.000	0.000	0.000	0.000	DREF	3.4530 FEET
(RN3104)	MSRDC-3210,MSFC/LHSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	XHRP	2.5930 FEET
						YHRP	0.0000 FEET
						ZHRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.400

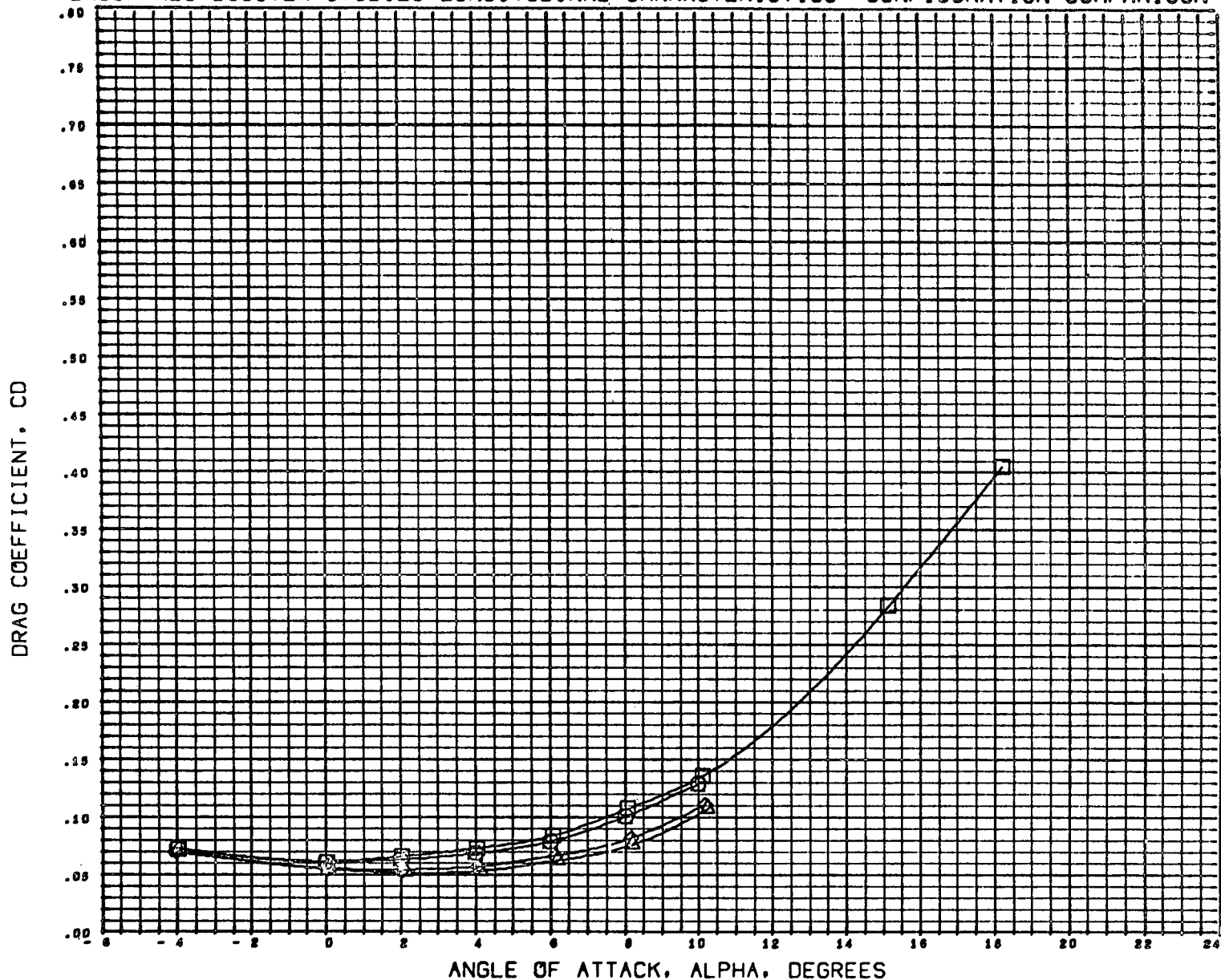
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN3001)	MSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H4	0.780	0.000	0.000	0.000	SREF	1.3550 80. FT.
(RN3106)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.780	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3102)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3164)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	XNRP	2.5950 FEET
						YNRP	0.0000 FEET
						ZNRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.400

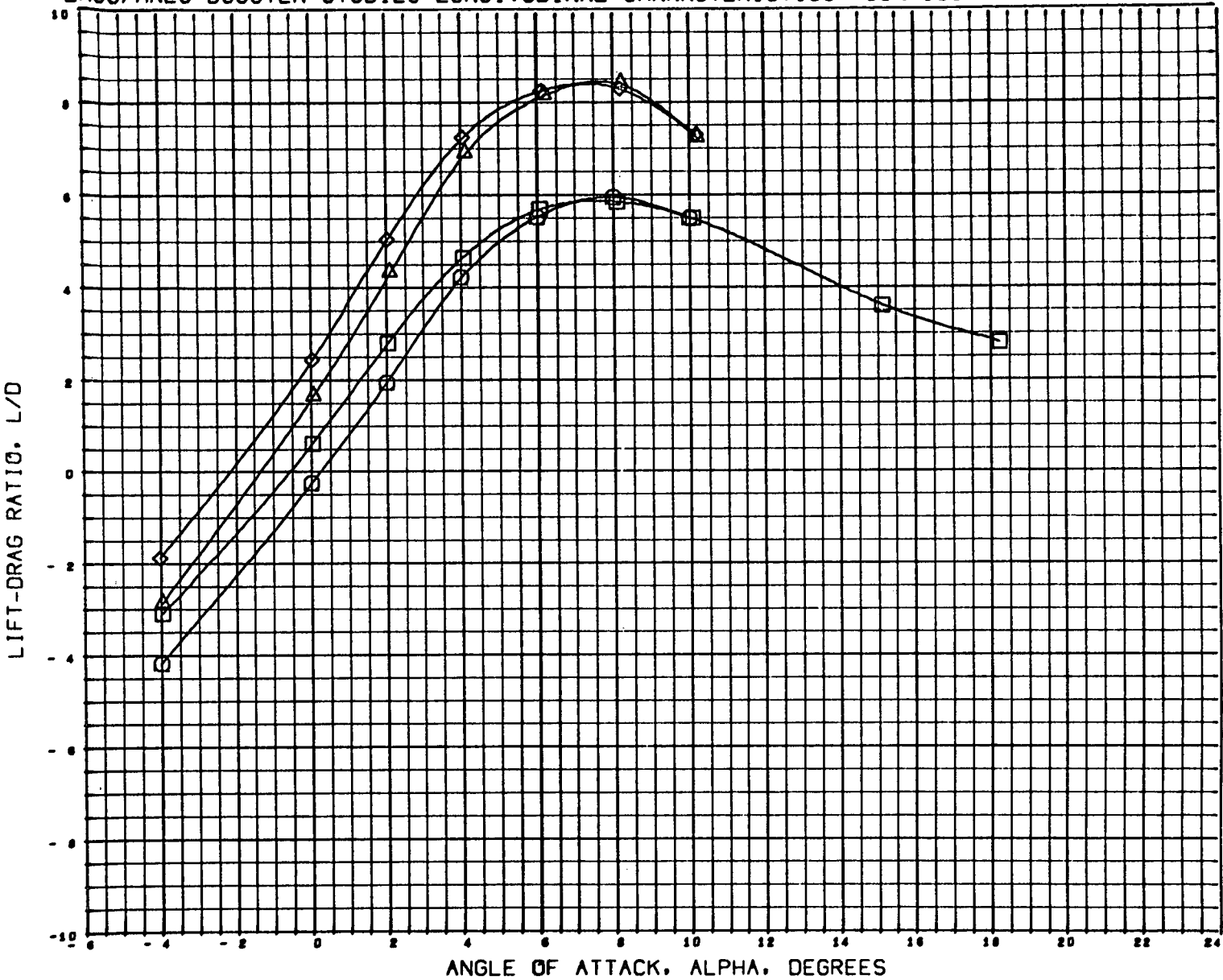
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN3001)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H4	0.780	0.000	0.000	0.000	SREF	1.3350 SQ.FT.
(AN3106)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.780	0.000	0.000	0.000	LREF	3.4530 FEET
(AN3102)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(AN3104)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	XMRP	2.3950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0197 FEET
						SCALE	0.0150 SCALE

MACH 0.400

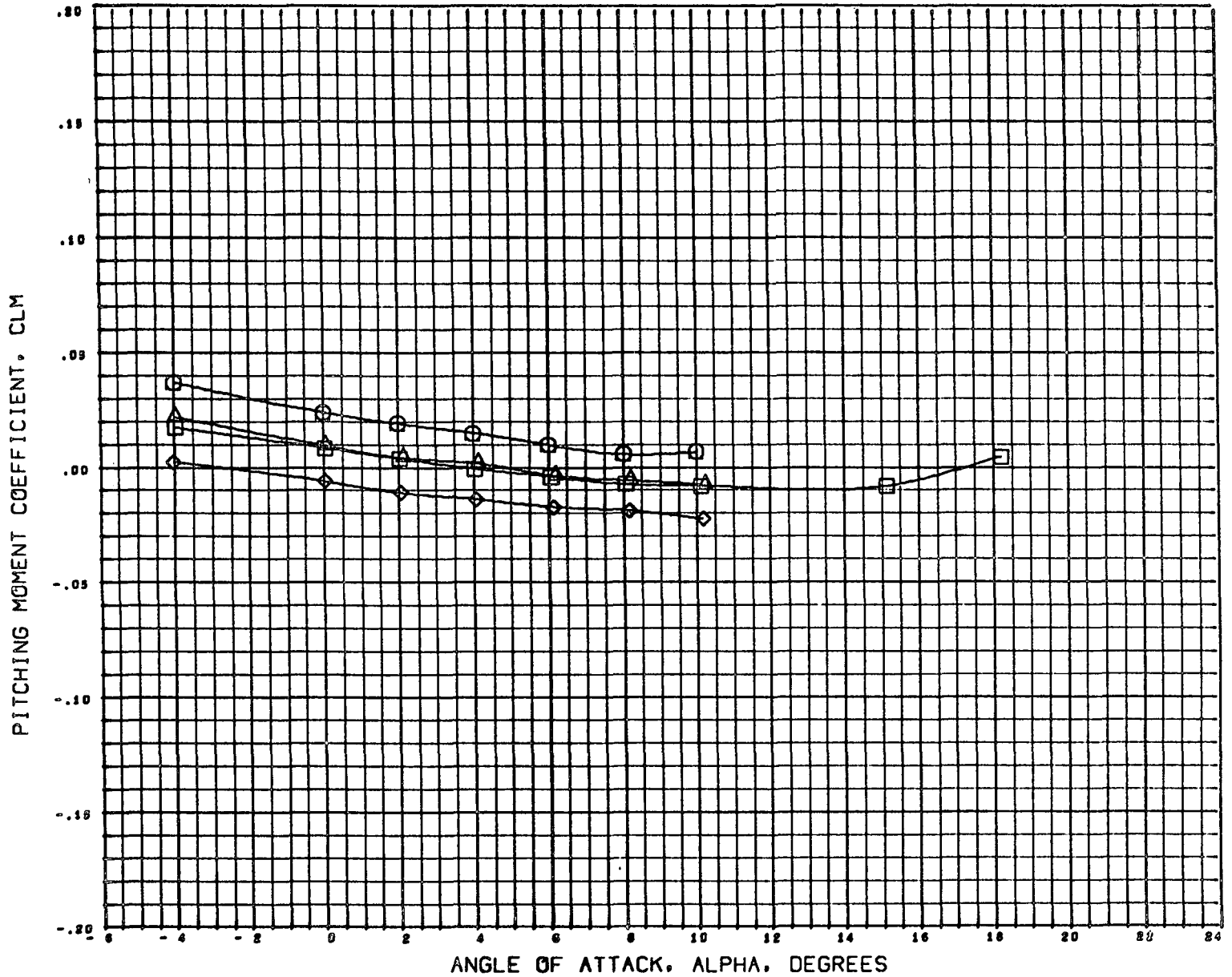
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN3001)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H4	0.780	0.000	0.000	0.000	SREF	1.3950 SQ.FT.
(RN3106)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.780	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3102)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3104)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	XMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.400

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

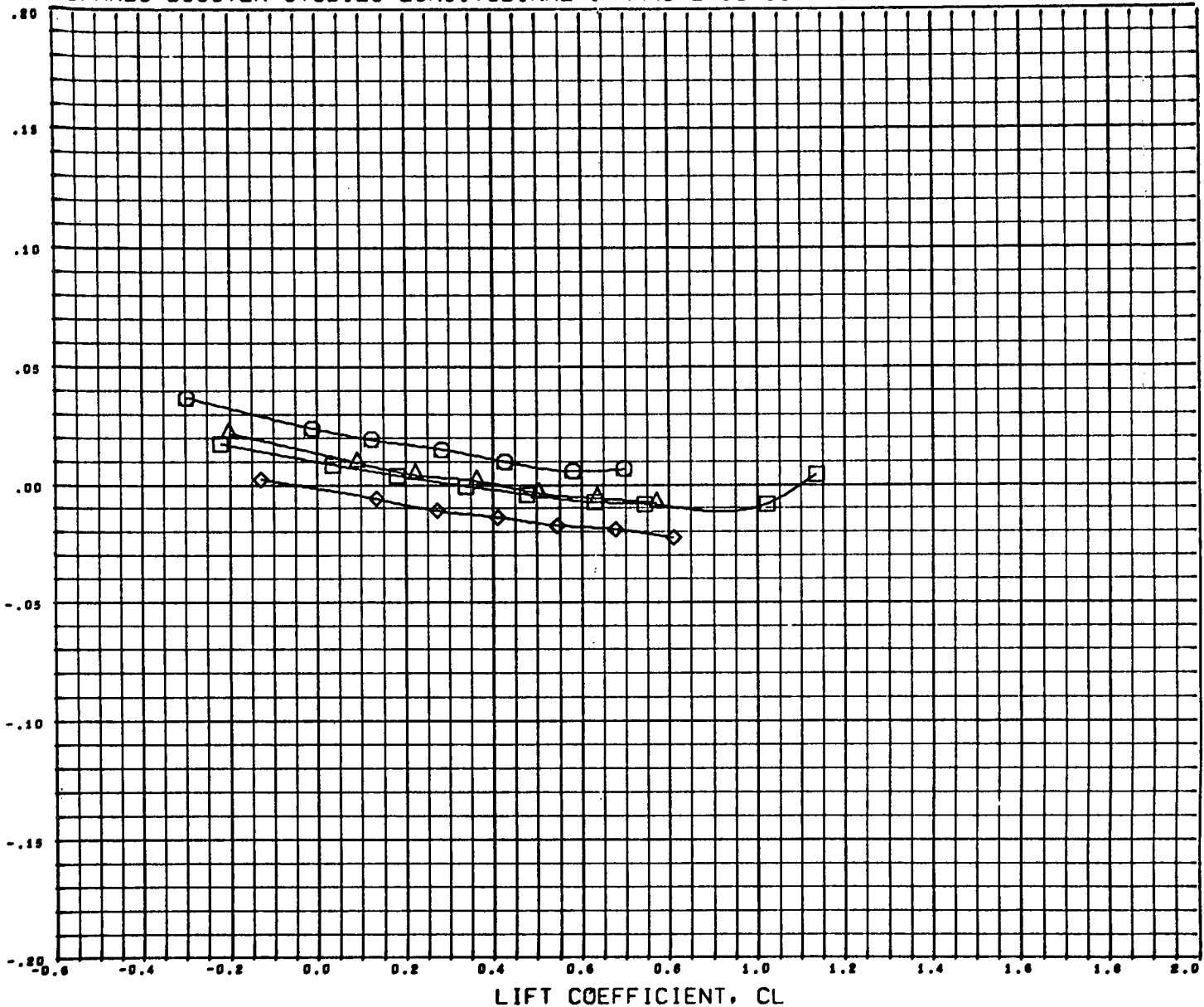


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN3001)	MSRDC-3210,MSFC/LHSC BSTR.(PWR-ON) B1C2F2W1V1H4	0.780	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(AN3106)	MSRDC-3210,MSFC/LHSC BOOSTER B1C2F2W1V1E4	0.780	0.000	0.000	0.000	LREF	3.4530 FEET
(AN3102)	MSRDC-3210,MSFC/LHSC BOOSTER B1C2F2W1V1E4	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(AN3104)	MSRDC-3210,MSFC/LHSC BOOSTER B1C2F2W1V1E4	0.000	0.000	0.000	0.000	XNRP	2.5950 FEET
						YNRP	0.0000 FEET
						ZNRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.400

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

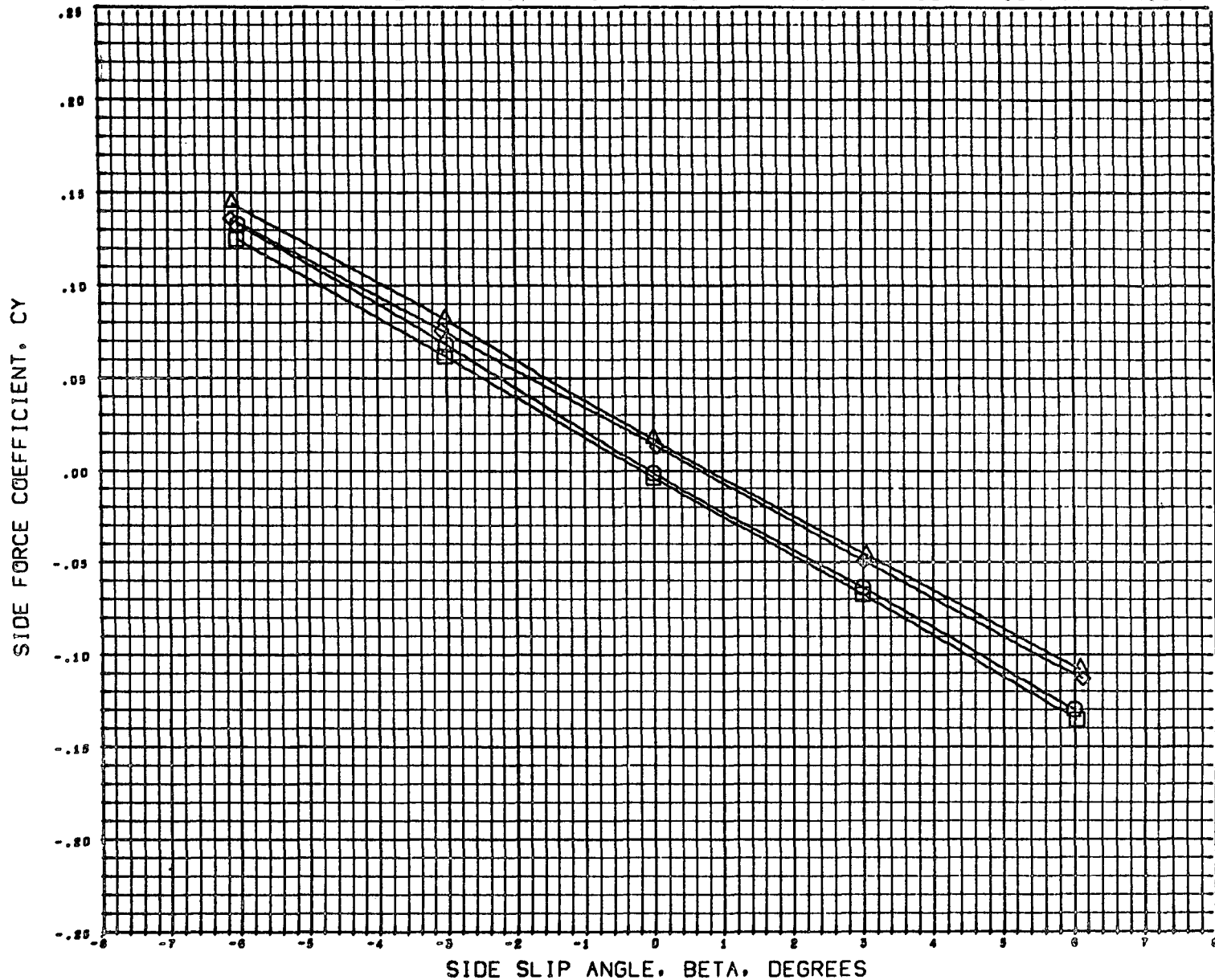
PITCHING MOMENT COEFFICIENT, CLM



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN3001)	○	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H4	0.780	0.000	0.000	0.000	SRF	1.3550 SQ.FT.
(RN3106)	◇	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.780	0.000	0.000	0.000	LR	3.4530 FEET
(RN3102)	△	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.000	0.000	0.000	0.000	SRF	3.4530 FEET
(RN3104)	□	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	XMRP	2.9950 FEET
							YMRP	0.0000 FEET
							ZMRP	0.0187 FEET
							SCALE	0.0150 SCALE

MACH 0.400

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON

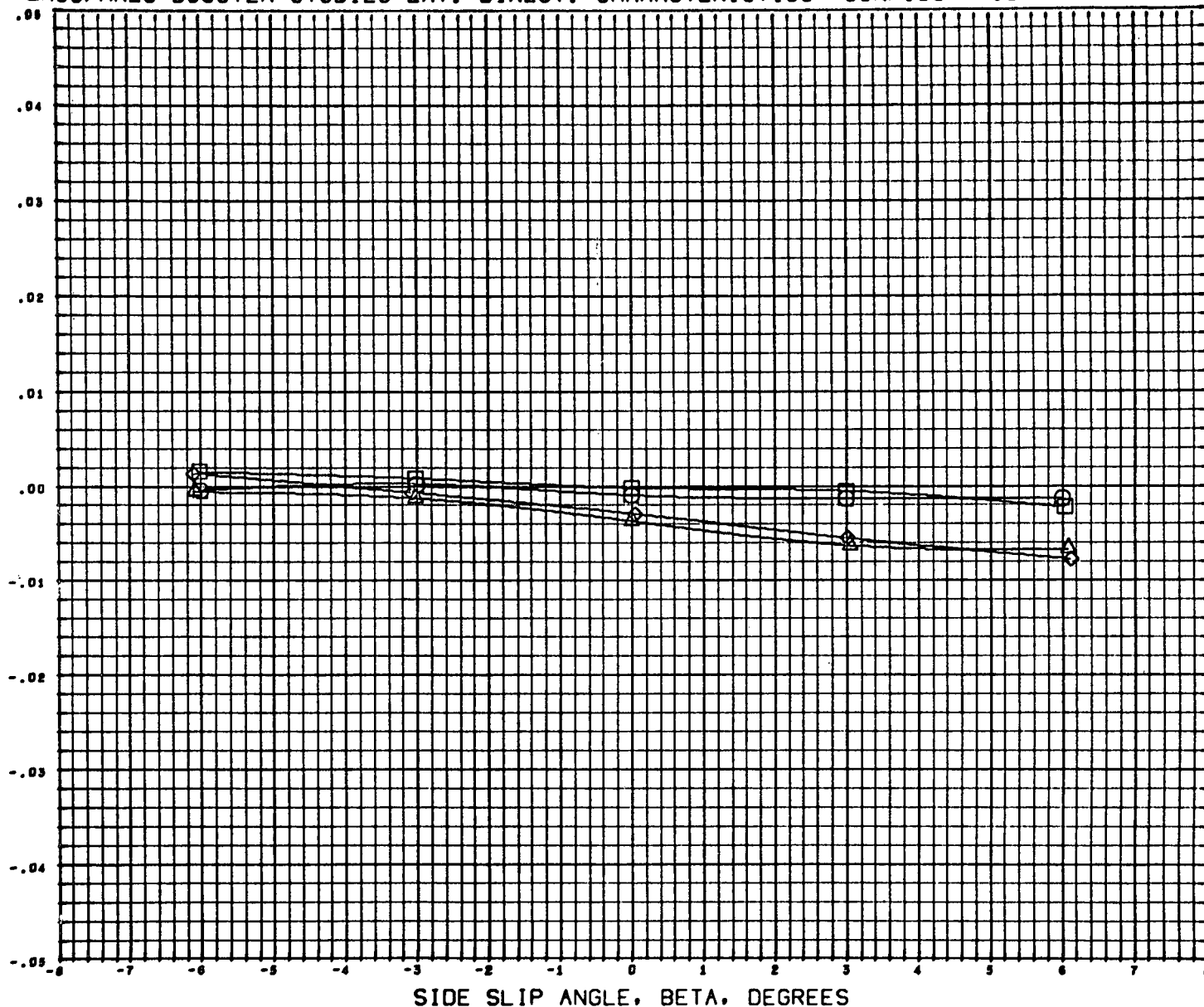


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION	
(AN300K)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H4	0.045	0.772	0.000	0.000	SREF	1.3950 SQ.FT.
(AN3107)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.045	0.772	0.000	0.000	LREF	3.4530 FEET
(AN3103)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.010	0.000	0.000	0.000	BREF	3.4530 FEET
(AN3105)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.002	0.000	0.000	0.000	XMRP	2.9050 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.400

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON

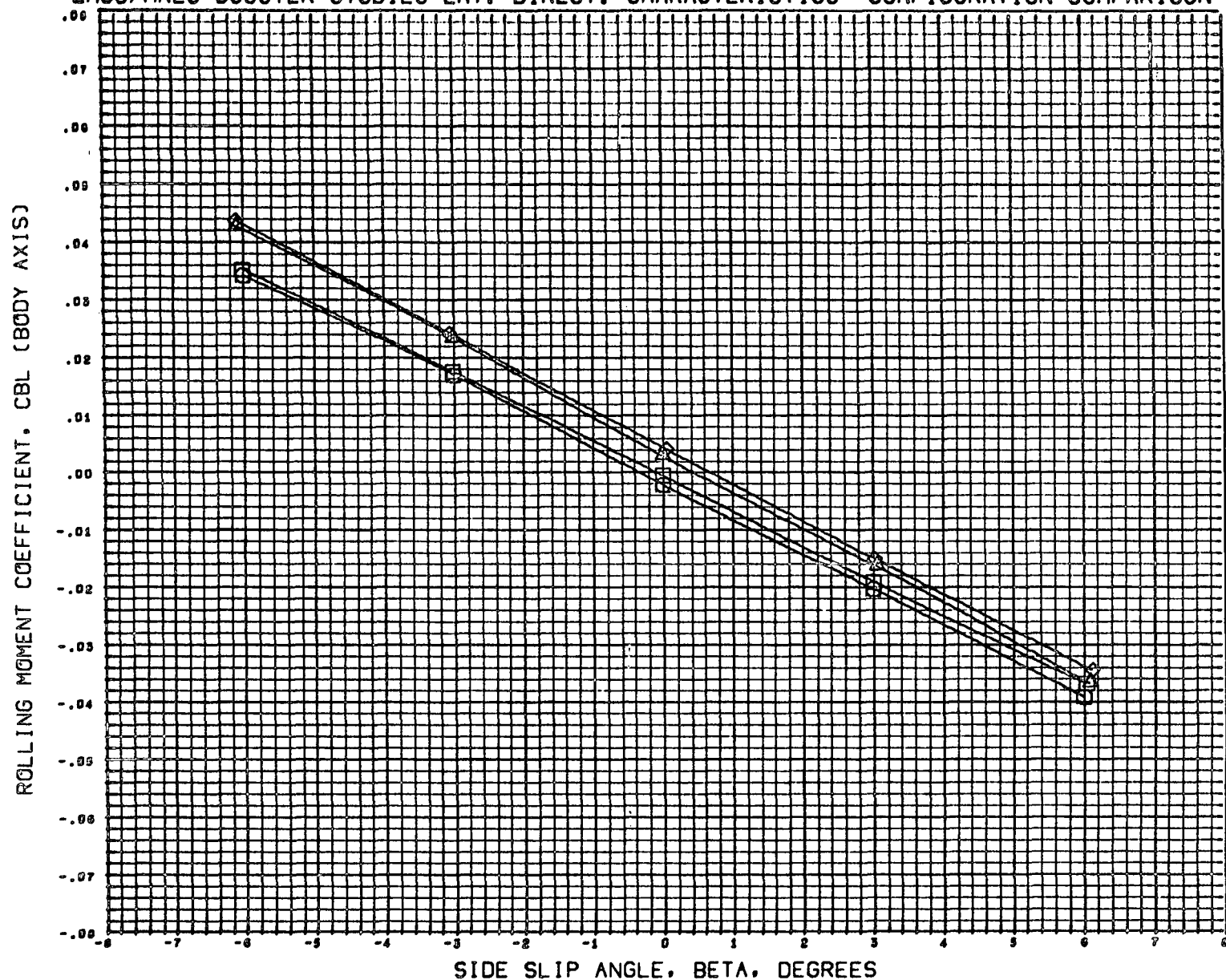
YAWING MOMENT COEFFICIENT, CYN (BODY AXIS)



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION	
(AN300K)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H4	0.045	0.772	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3107)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.045	0.772	0.000	0.000	LREF	3.4530 FEET
(RN3103)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.010	0.000	0.000	0.000	OREF	3.4530 FEET
(RN3105)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.002	0.000	0.000	0.000	XMRP	2.3950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0107 FEET
						SCALE	0.0150 SCALE

MACH 0.400

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON

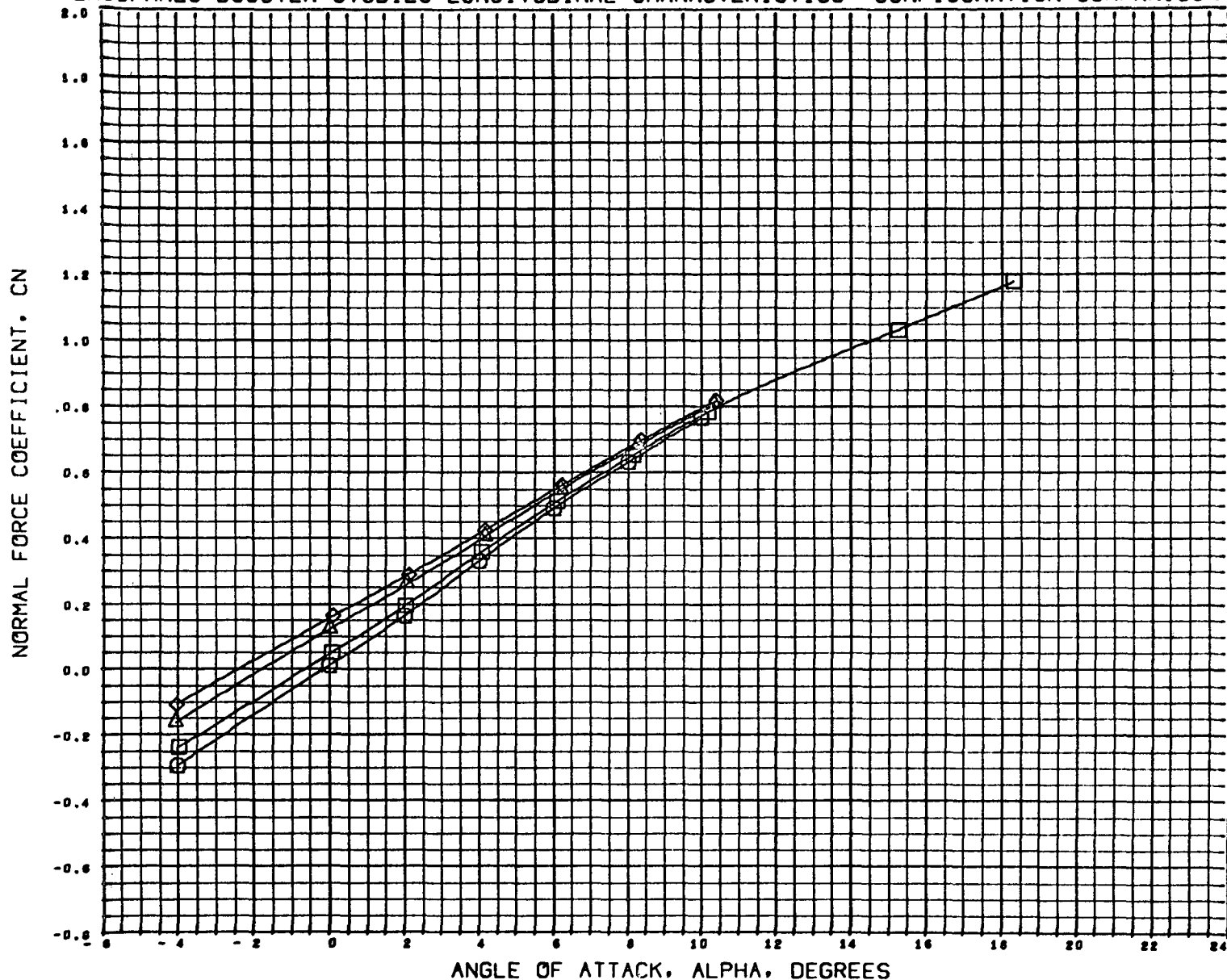


SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION	
(AN300K)	MSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H4	0.045	0.772	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3107)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.045	0.772	0.000	0.000	LREF	3.4530 FEET
(RN3109)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.010	0.000	0.000	0.000	BREF	3.4930 FEET
(RN3109)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.002	0.000	0.000	0.000	XMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0387 FEET
						SCALE	0.0150 SCALE

MACH 0.400

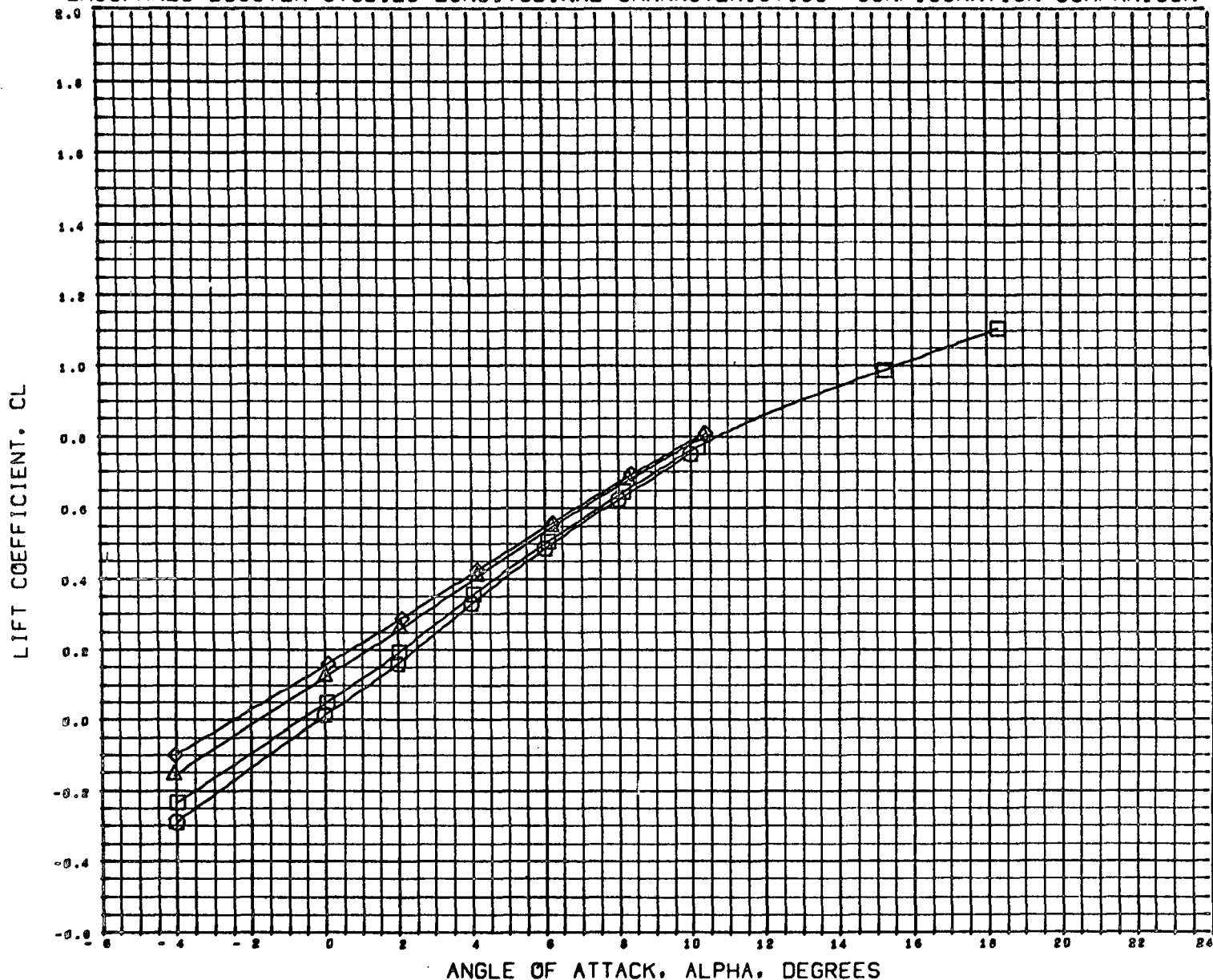
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300J)	MSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H4	0.717	0.000	0.000	0.000	SREF	1.3550 50.FT.
(RN3114)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.717	0.000	0.000	0.000	LREF	3.4930 FEET
(RN3110)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.000	0.000	0.000	0.000	BREF	3.4930 FEET
(RN3188)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	XMRP	2.5930 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0107 FEET
						SCALE	0.0150 SCALE

MACH 0.500

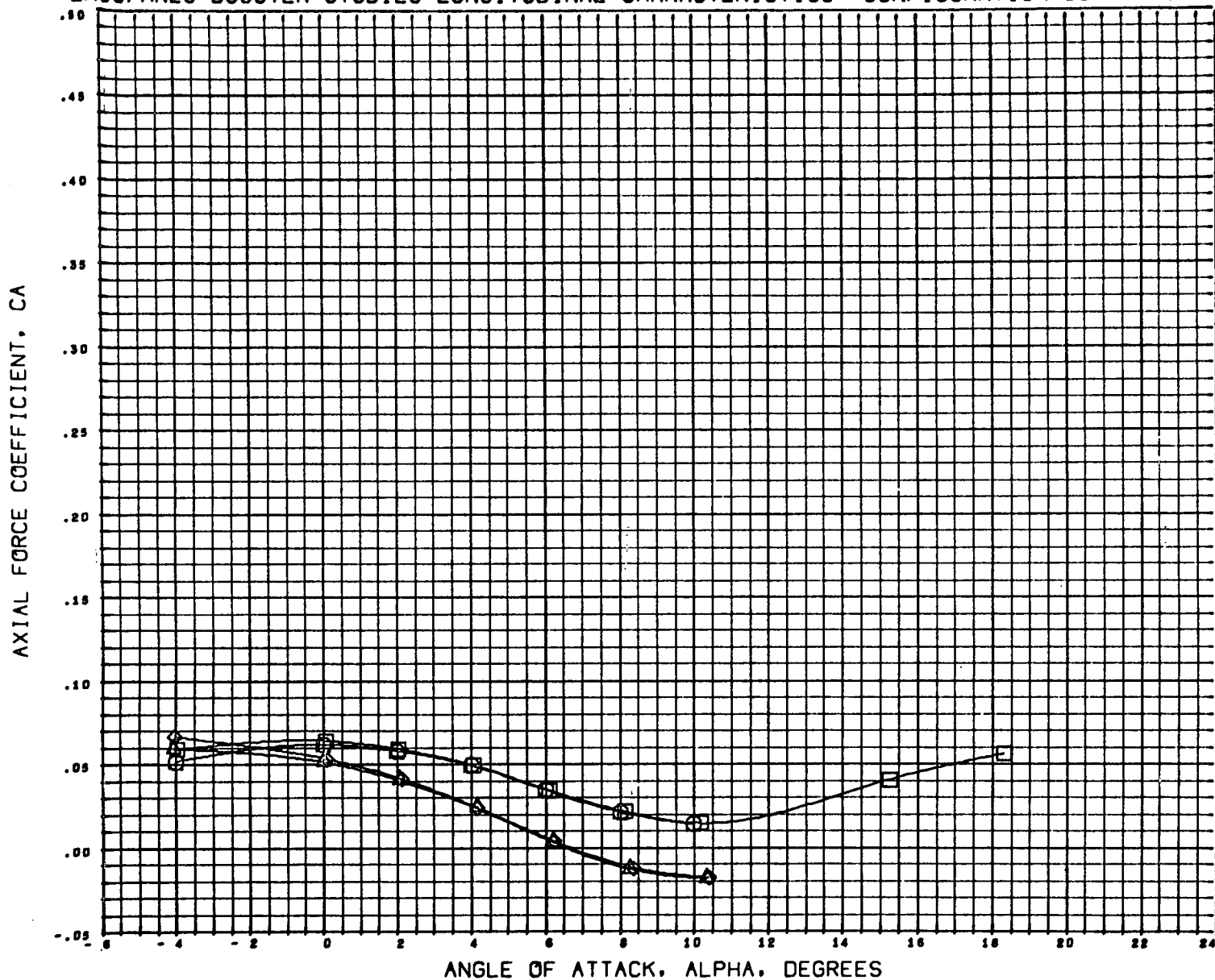
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300J)	MSRDC-3210,MSFC/LMSC B&TR. (PWR-ON) B1C2F2W1V1H4	0.717	0.000	0.000	0.000	SREF	1.3550 58.FT.
(RN3114)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.717	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3110)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3106)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.500

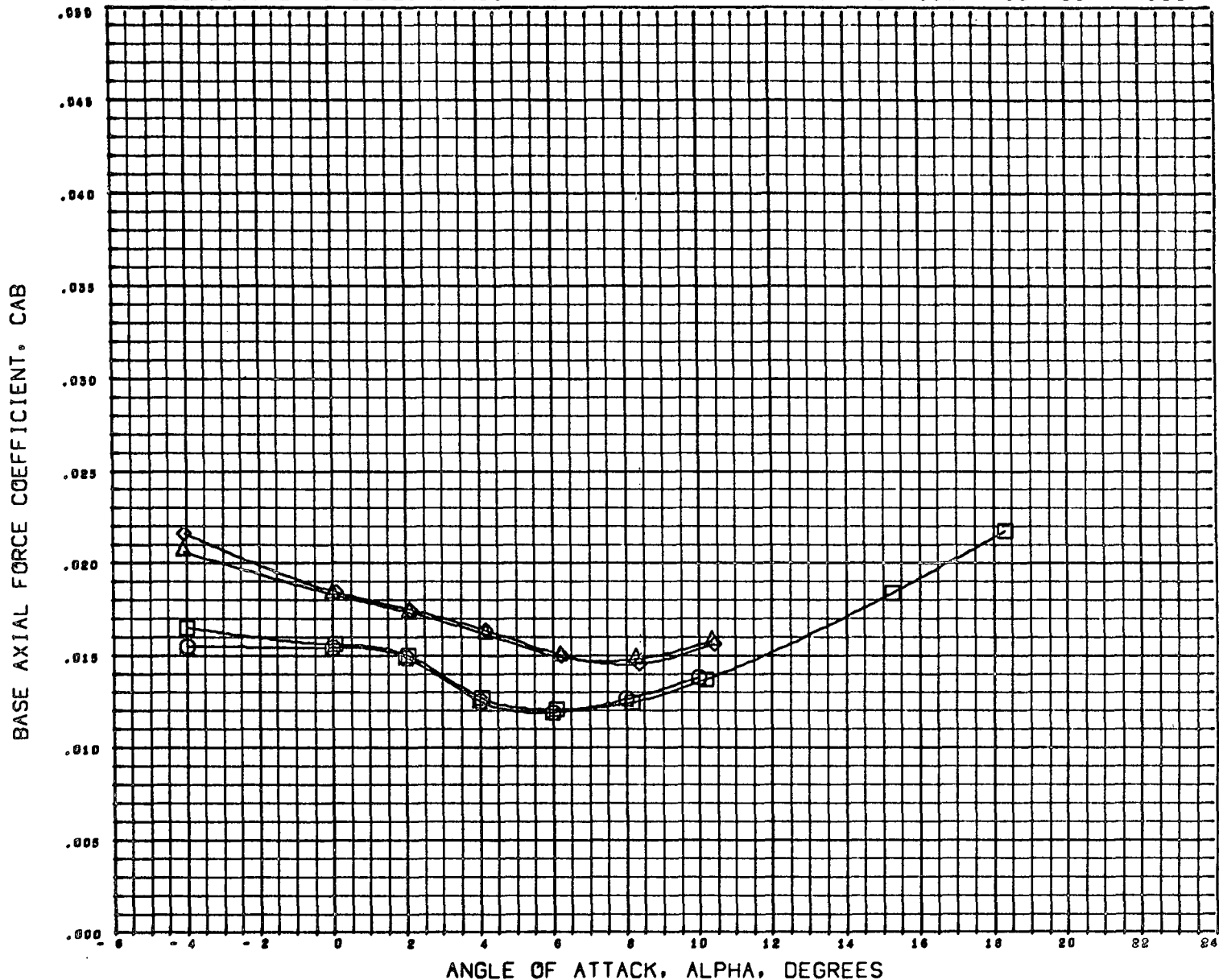
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300J)	MSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H4	0.717	0.000	0.000	0.000	SREF	1.3550 80.FT.
(RN3114)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.717	0.000	0.000	0.000	LREF	3.4330 FEET
(RN3110)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.000	0.000	0.000	0.000	BREF	3.4330 FEET
(RN3108)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.500

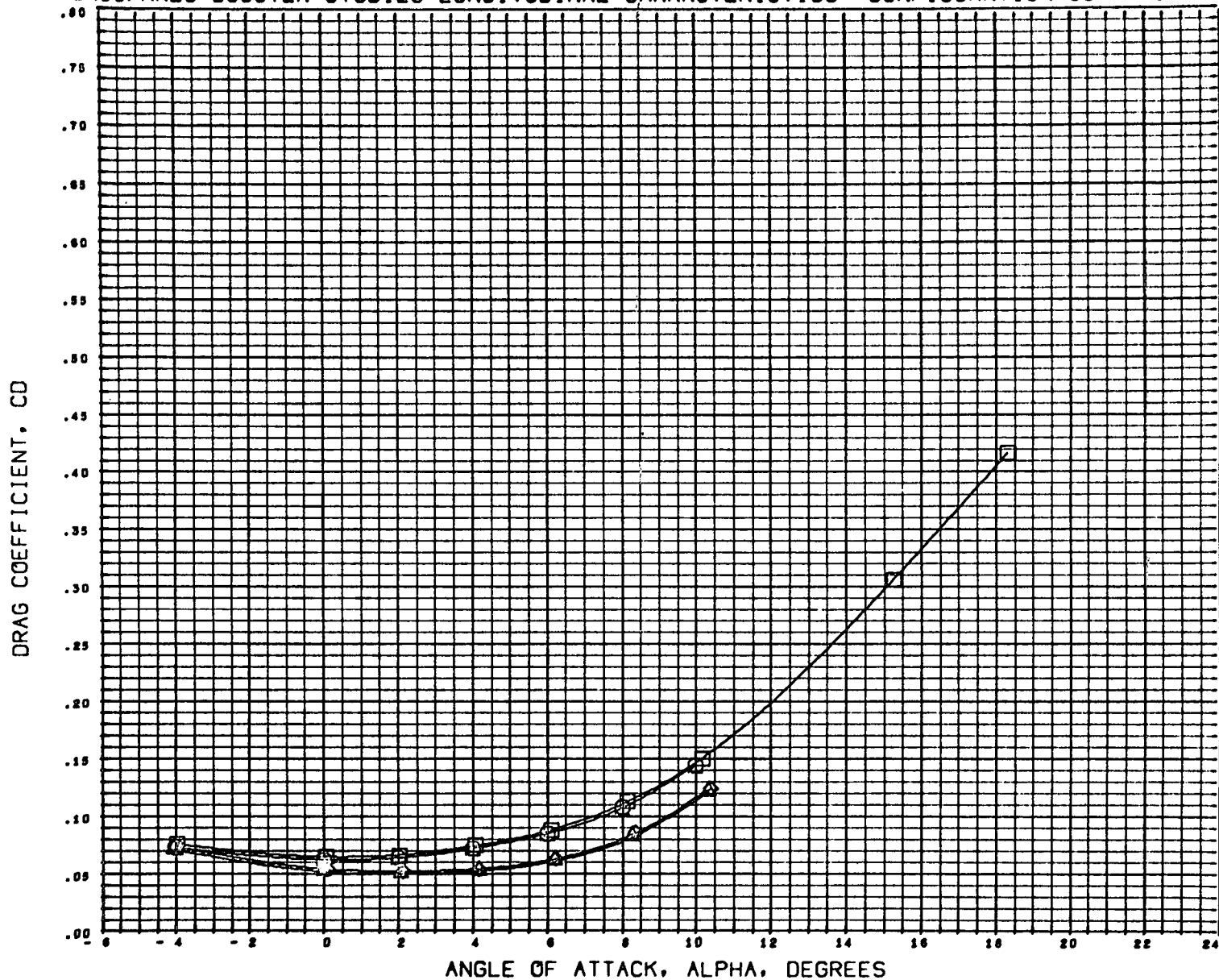
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300J)	MSRDC-3210, MSFC/LHSC BSTR. (PWR-ON) B1C2F2W1V1H4	0.717	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(RN3134)	MSRDC-3210, MSFC/LHSC BOOSTER B1C2F2W1V1E4	0.717	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3130)	MSRDC-3210, MSFC/LHSC BOOSTER B1C2F2W1V1E4	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3106)	MSRDC-3210, MSFC/LHSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	XMRP	2.3950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.500

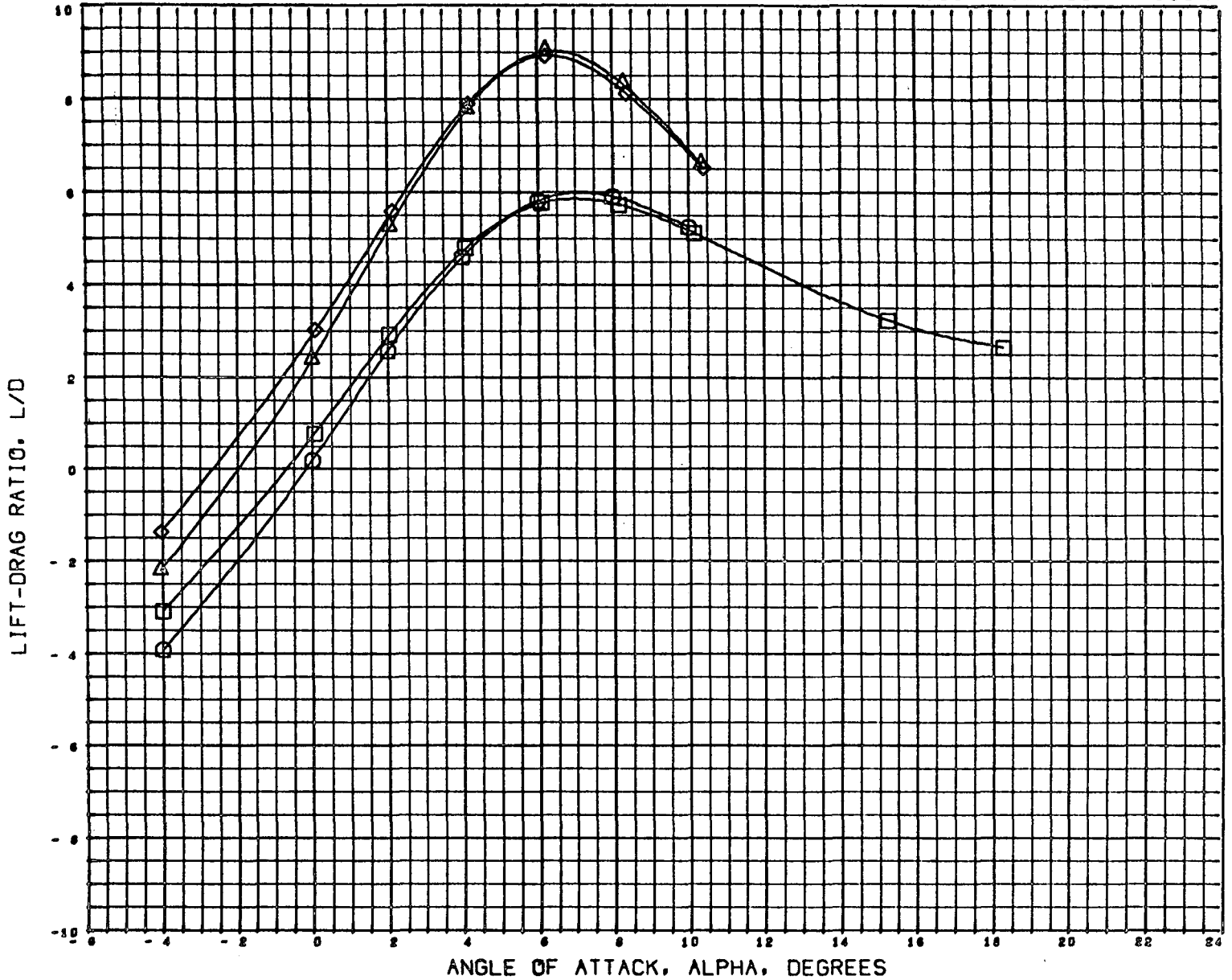
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H4	0.717	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3114)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.717	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3110)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3108)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	XMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0107 FEET
						SCALE	0.0150 SCALE

MACH 0.900

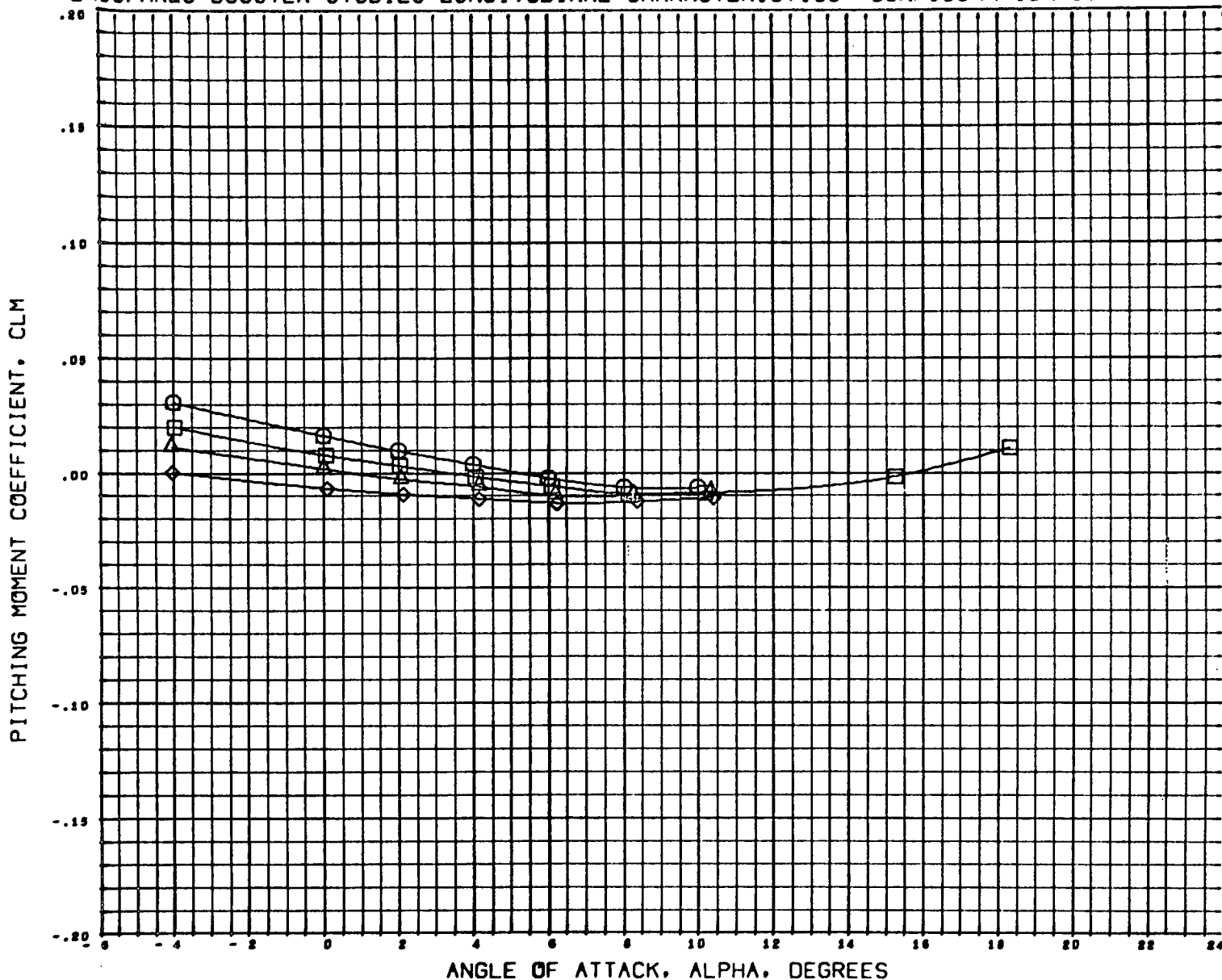
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(ANS00J)	MSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H4	0.717	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RNS114)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.717	0.000	0.000	0.000	LREF	3.4930 FEET
(RNS110)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.000	0.000	0.000	0.000	GREF	3.4930 FEET
(RNS100)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.900

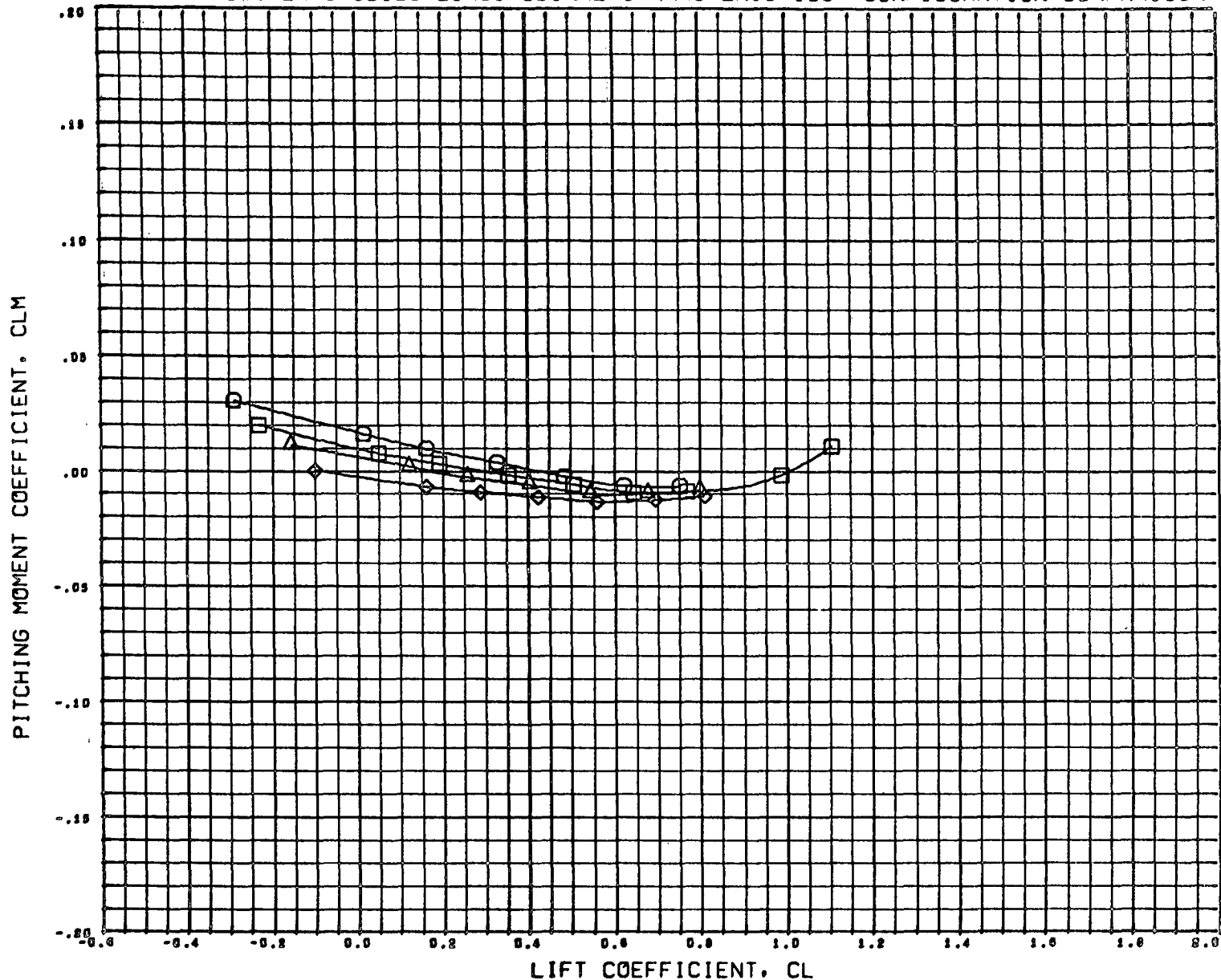
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300J)	MSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H4	0.717	0.000	0.000	0.000	SREF	1.3550 30.FT.
(RN3114)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.717	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3110)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3108)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.000	0.000	0.000	0.000	XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.500

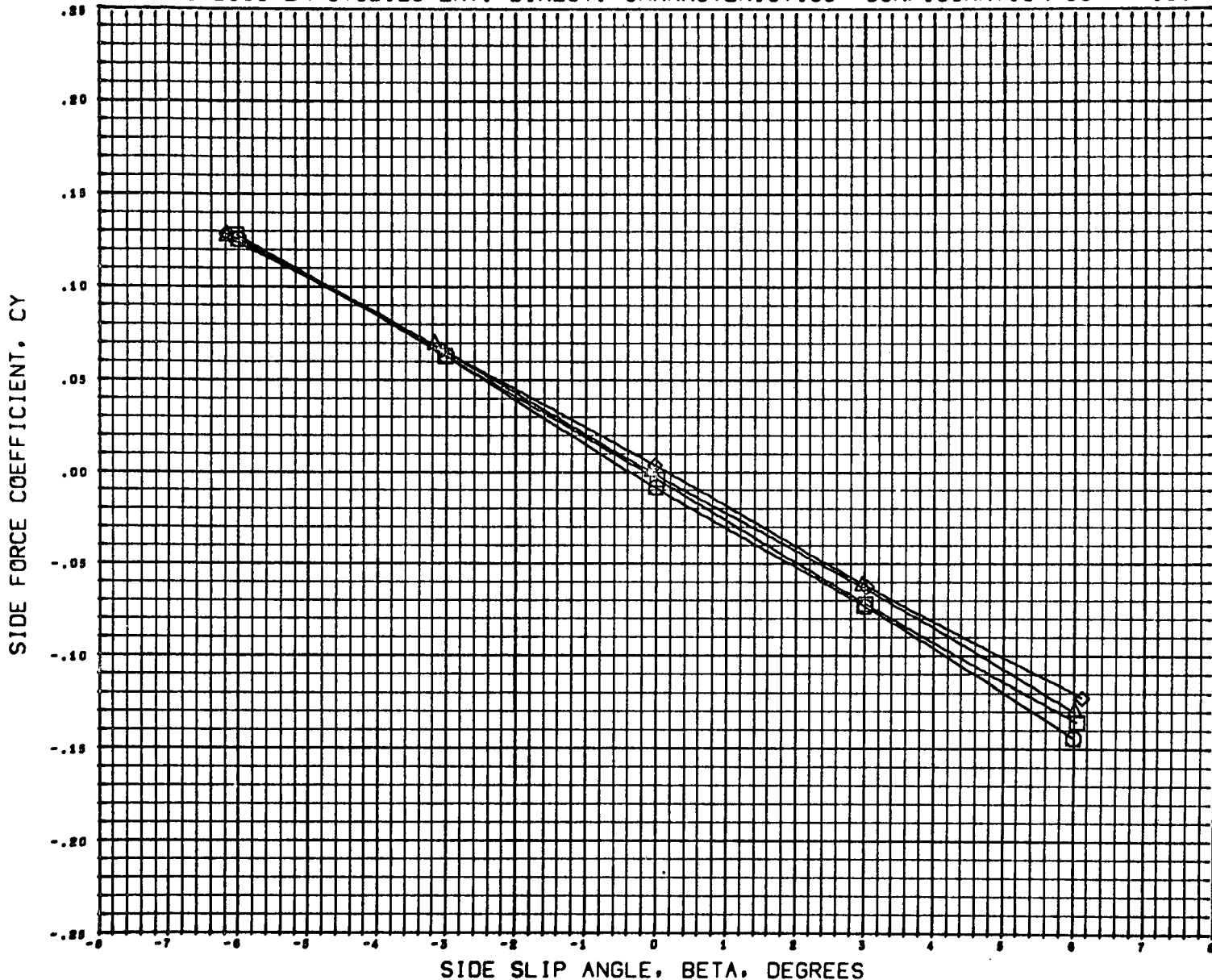
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300J)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H4	0.717	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3314)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.717	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3310)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.000	0.000	0.000	0.000	DREF	3.4530 FEET
(RN3100)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	XMRP	0.9050 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0158 SCALE

MACH 0.900

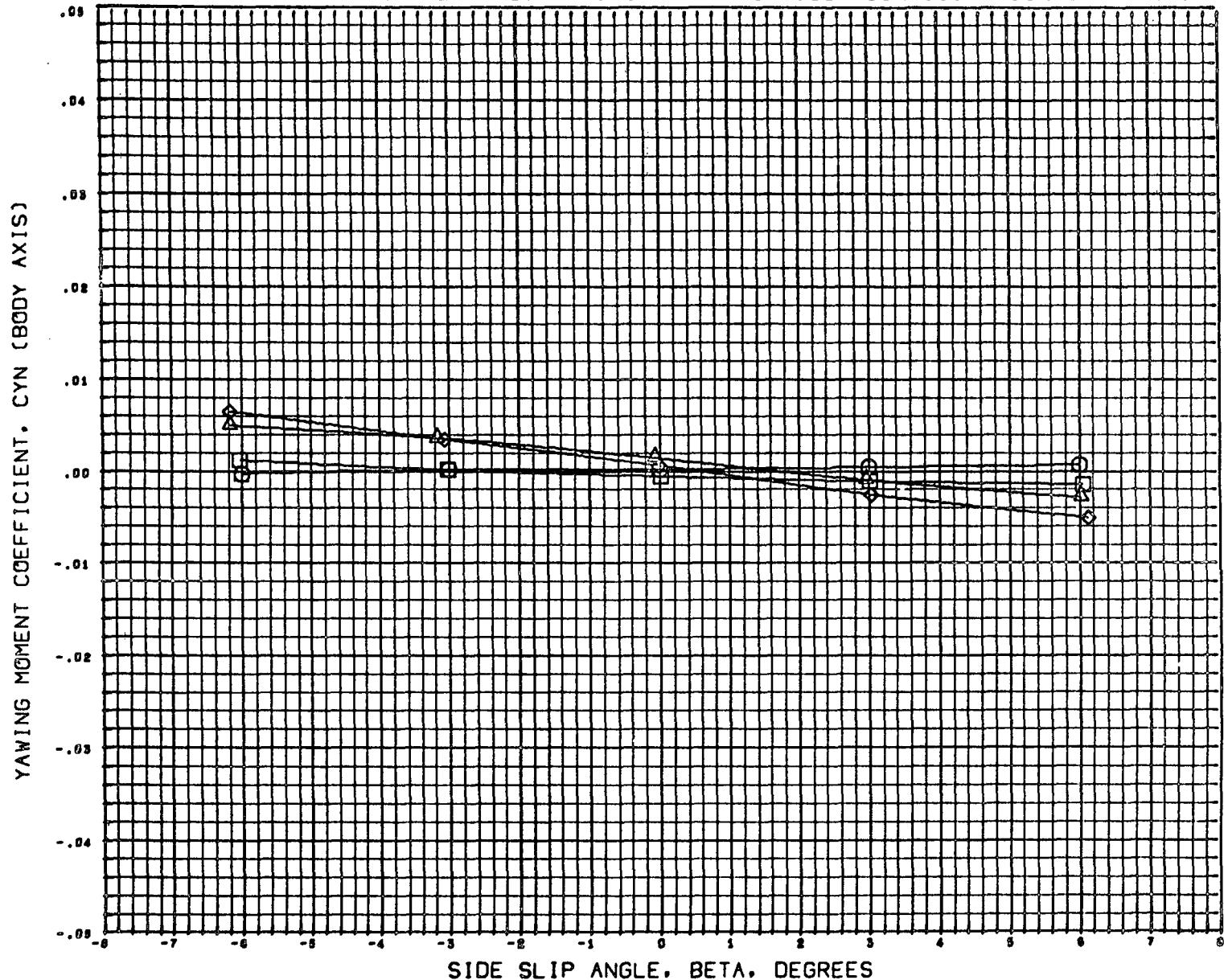
LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION	
(AN300L)	MSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H4	-0.001	0.716	0.000	0.000	SREF	1.3550 80.FT.
(RN3115)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E4	-0.001	0.716	0.000	0.000	LREF	3.4530 FEET
(RN3111)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.005	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3109)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.021	0.000	0.000	0.000	XHRP	2.5930 FEET
						YHRP	0.0000 FEET
						ZHRP	0.0107 FEET
						SCALE	0.0150 SCALE

MACH 0.500

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON



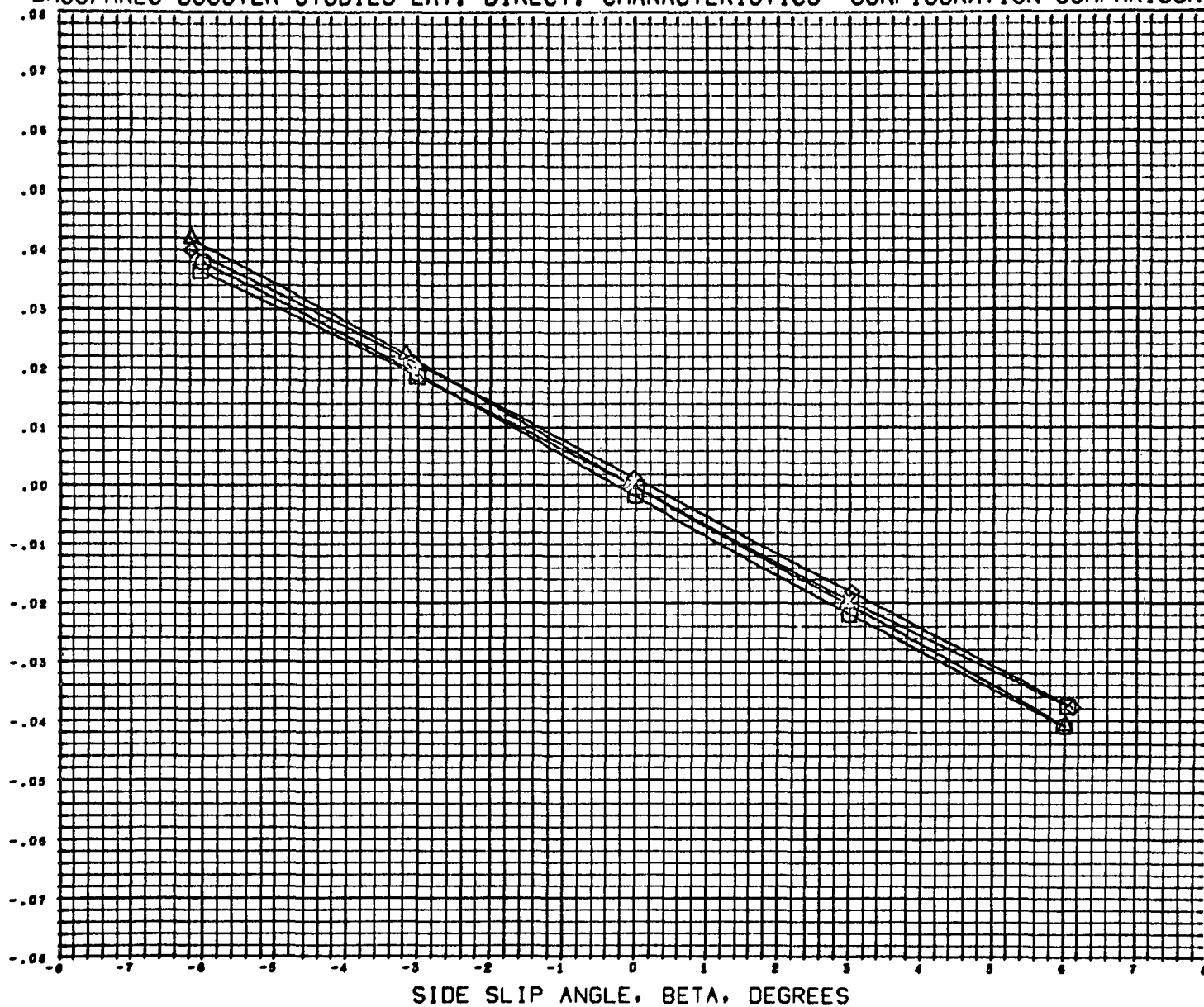
SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION	
(AN300L)	MSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H4	-0.001	0.716	0.000	0.000	SREF	1.3550 DE.FT.
(RN3115)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E4	-0.001	0.716	0.000	0.000	LREF	3.4930 FEET
(RN3111)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.005	0.000	0.000	0.000	GREF	3.4930 FEET
(RN3109)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.021	0.000	0.000	0.000	XMRP	2.3950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0107 FEET
						SCALE	0.0150 SCALE

MACH 0.500

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON

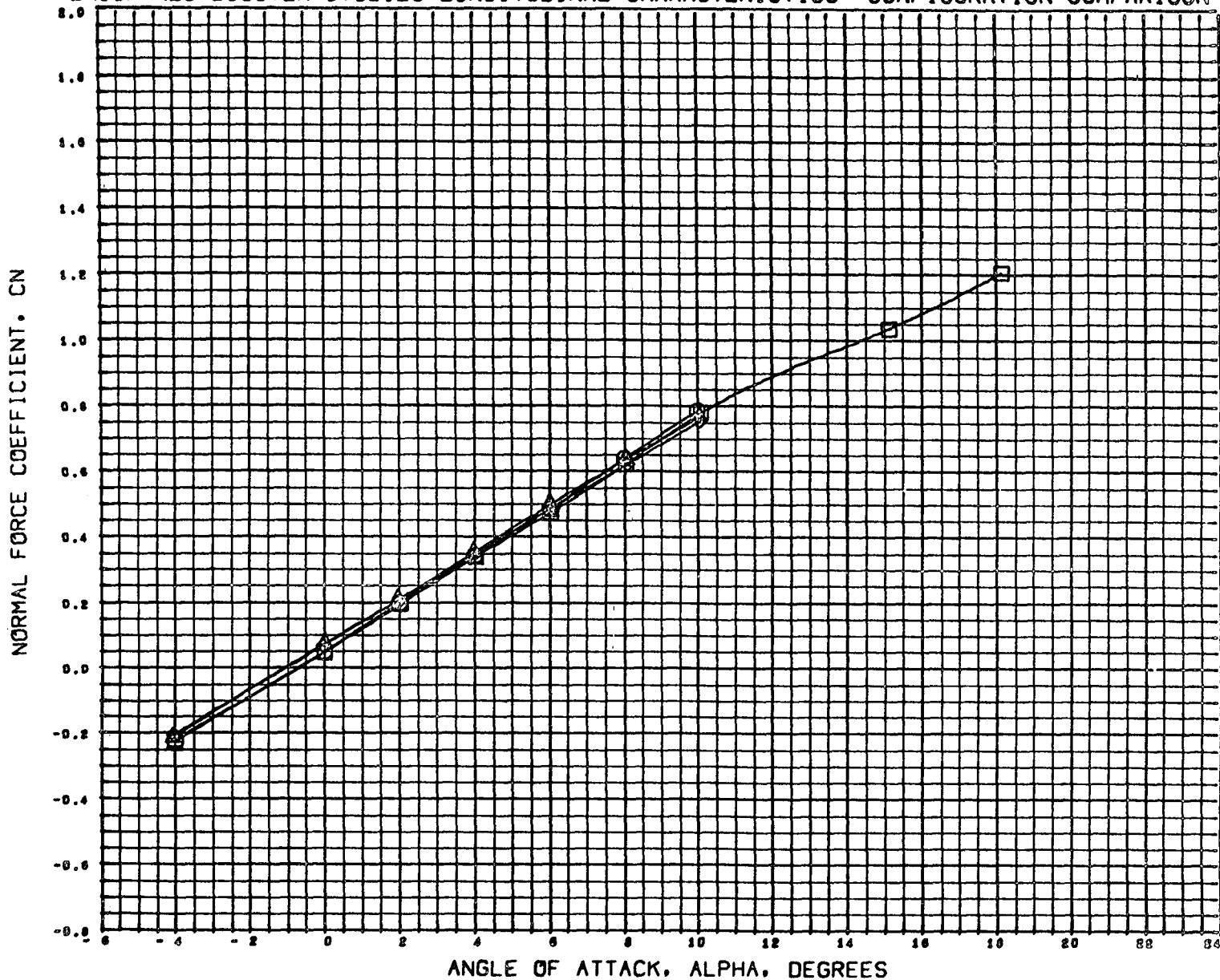
ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION	
(AN300L)	NSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H4	-0.001	0.716	0.000	0.000	SREF	1.3950 80. FT.
(RN3115)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E4	-0.001	0.716	0.000	0.000	LREF	3.4530 FEET
(RN3116)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E4	0.005	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3109)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.021	0.000	0.000	0.000	XHRP	2.5950 FEET
						YHRP	0.0000 FEET
						ZHRP	0.0167 FEET
						SCALE	0.0150 SCALE

NACH 0.500

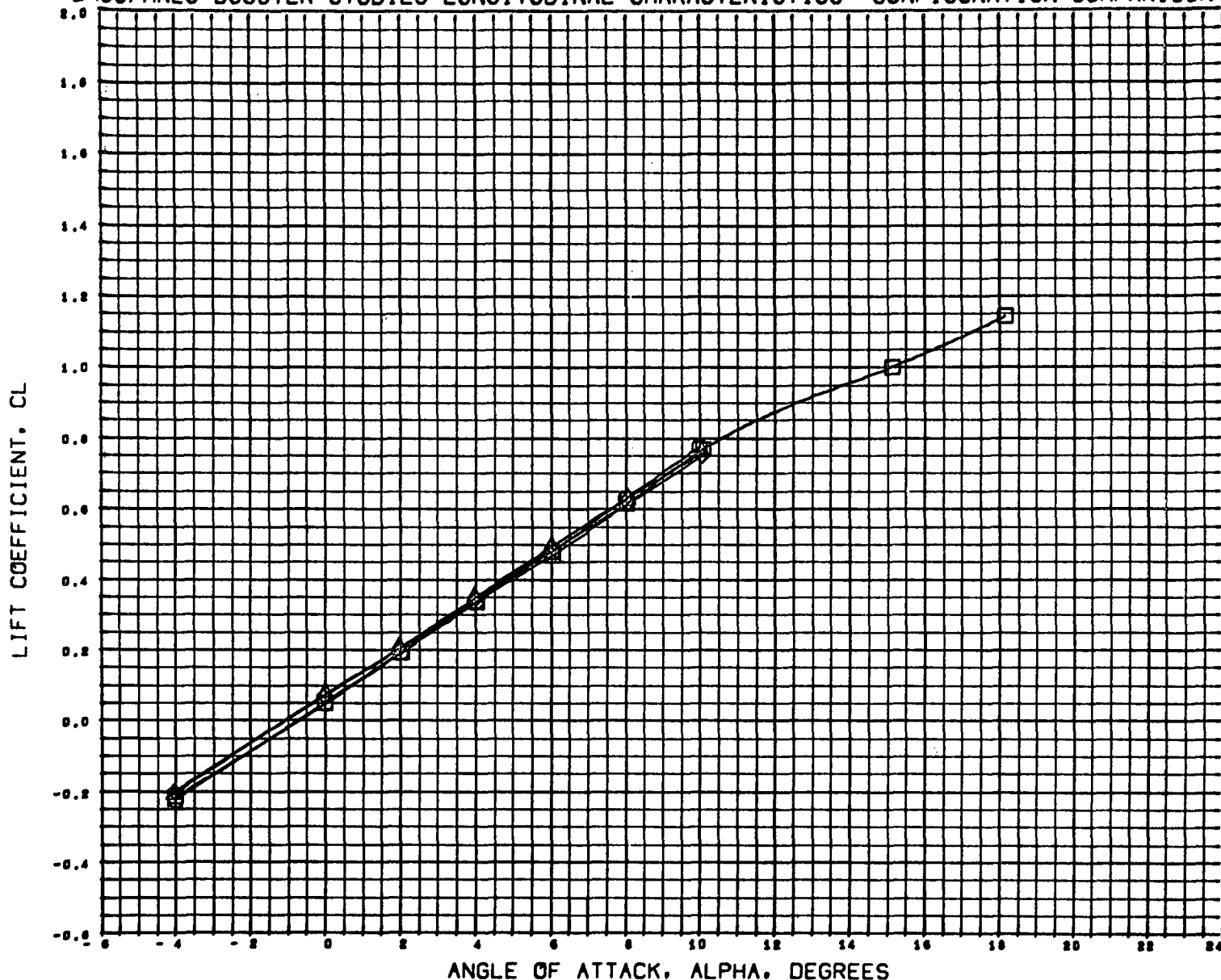
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300H)	○	MSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H2	0.728	0.000	0.000	0.000	BREF	1.3950 50. FT.
(RN3182)	△	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.728	0.000	0.000	0.000	LRFP	3.4330 FEET
(RN3118)	◇	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.000	0.000	0.000	0.000	BREF	3.4330 FEET
(RN3192)	□	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.000	0.000	0.000	0.000	XNRP	2.5950 FEET
							YNRP	0.0000 FEET
							ZNRP	0.0167 FEET
							SCALE	0.0190 SCALE

MACH 0.400

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

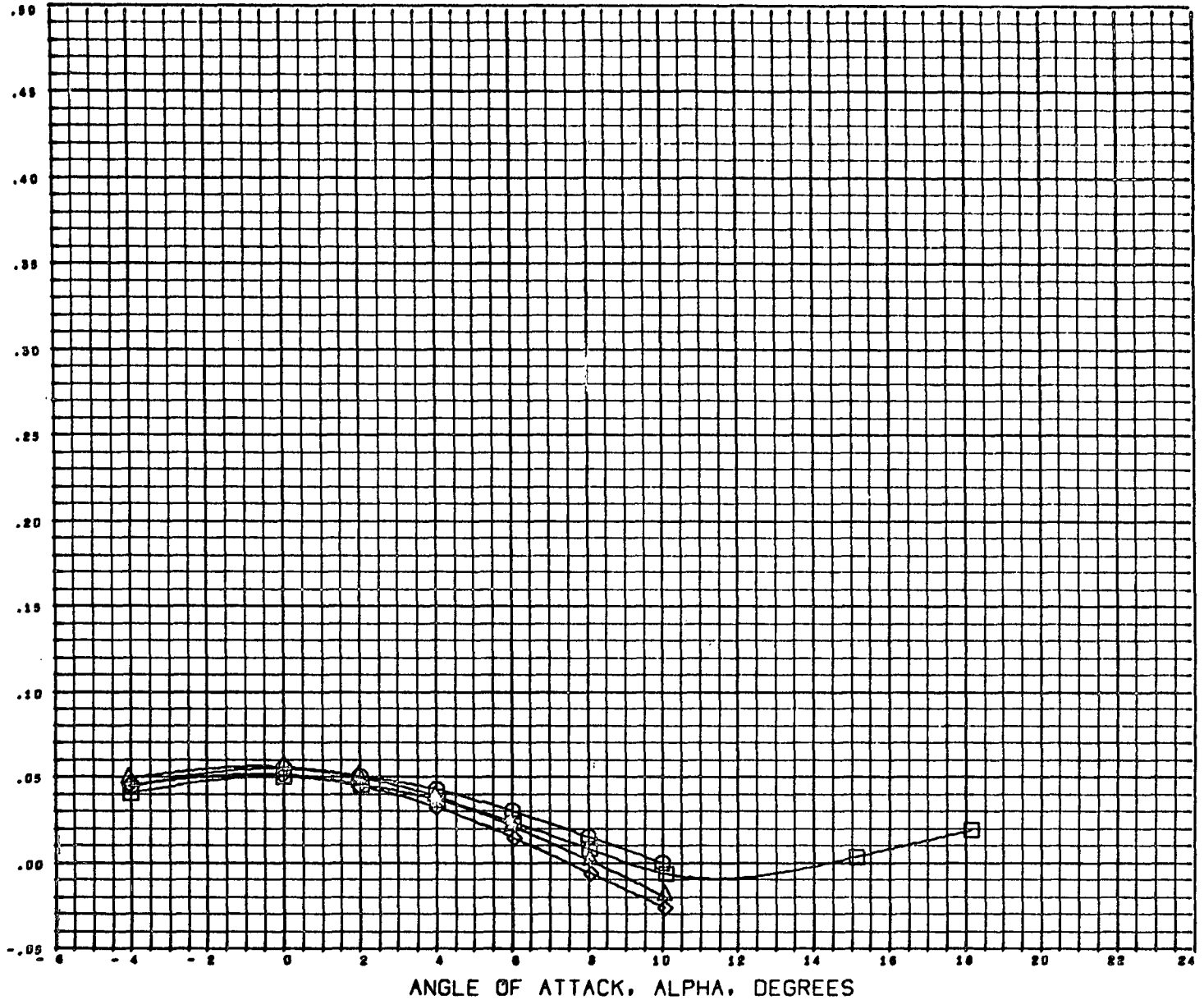


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300N)	MSRDC-3210,MSFC/LMSC B&TR.(PWR-ON) B1C2F2W1V1H2	0.728	0.000	0.000	0.000	SREF	1.3550 88.FT.
(AN3122)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.728	0.000	0.000	0.000	LREF	3.4530 FEET
(AN3118)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(AN3198)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	XHRP	2.9980 FEET
						YHRP	0.0000 FEET
						ZHRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.400

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

AXIAL FORCE COEFFICIENT, CA

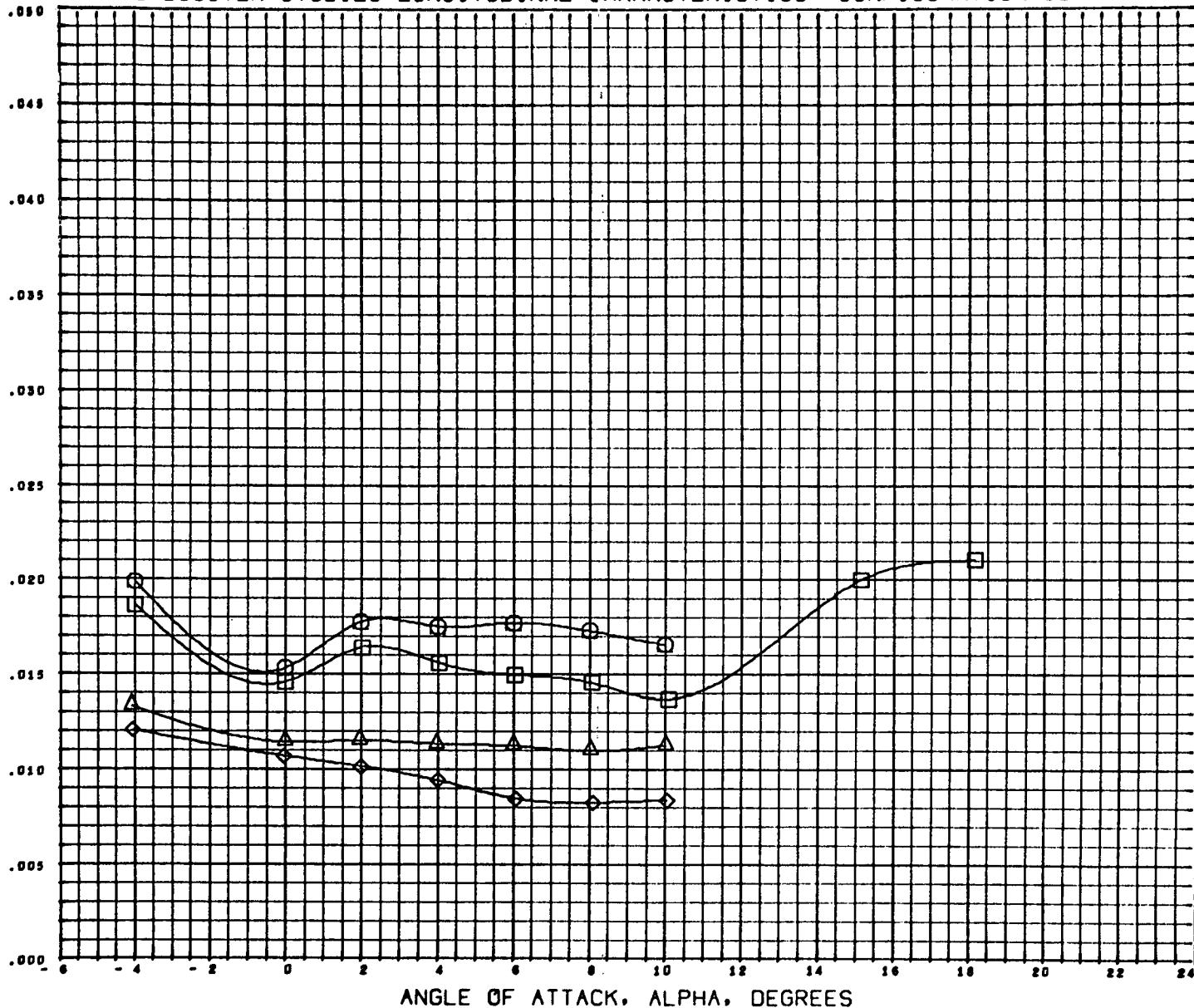


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION		
(AN300M)	MSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H2	0.728	0.000	0.000	0.000	SREF	1.3550	50. FT.
(RN3122)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.728	0.000	0.000	0.000	LREF	3.4530	FEET
(RN3118)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.000	0.000	0.000	0.000	SREF	3.4530	FEET
(RN3192)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	XMRP	2.5050	FEET
						YMRP	0.0000	FEET
						ZMRP	0.0167	FEET
						SCALE	0.0150	SCALE

MACH 0.400

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

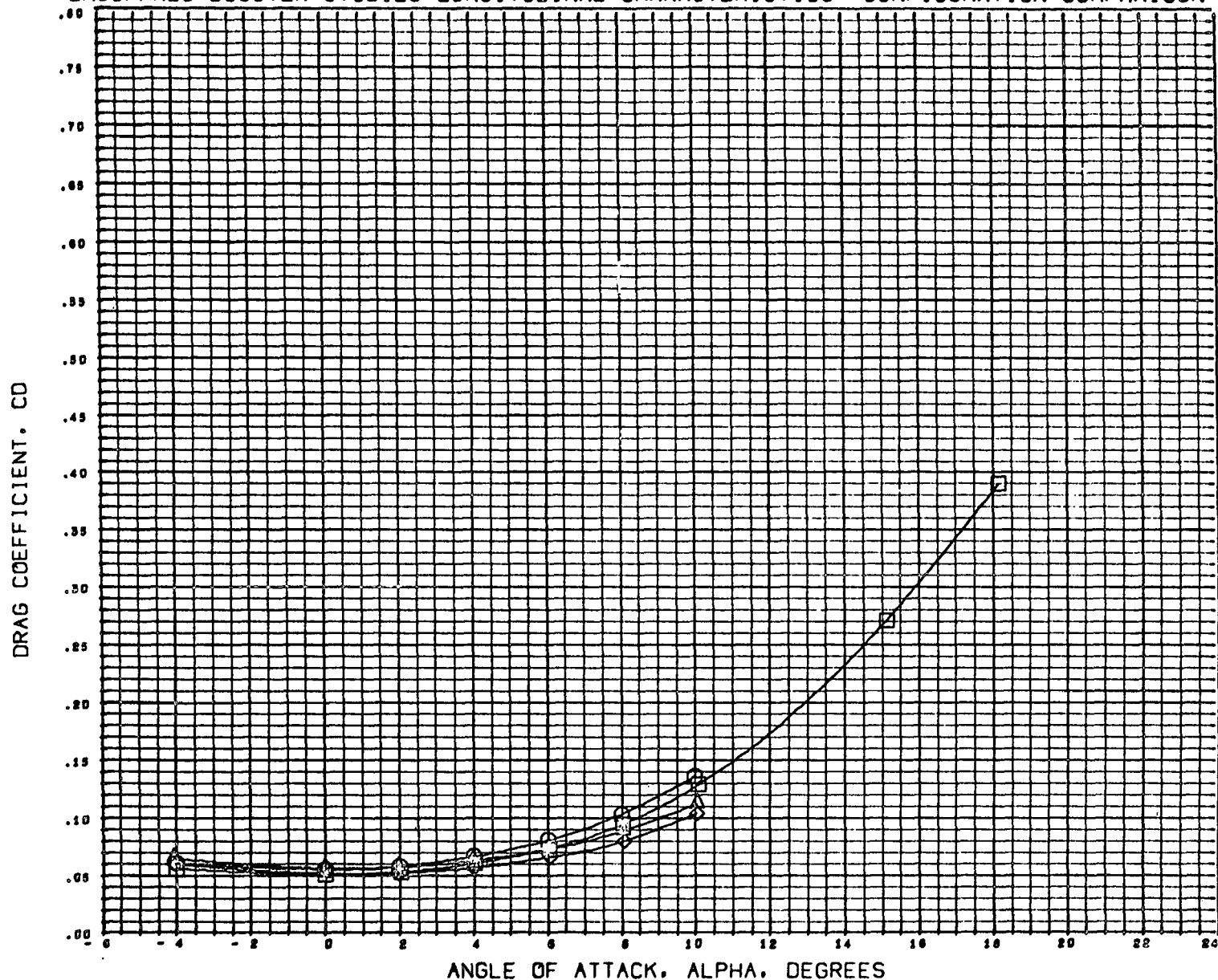
BASE AXIAL FORCE COEFFICIENT, CAB



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300N)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H2	0.728	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3122)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.728	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3116)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3192)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.400

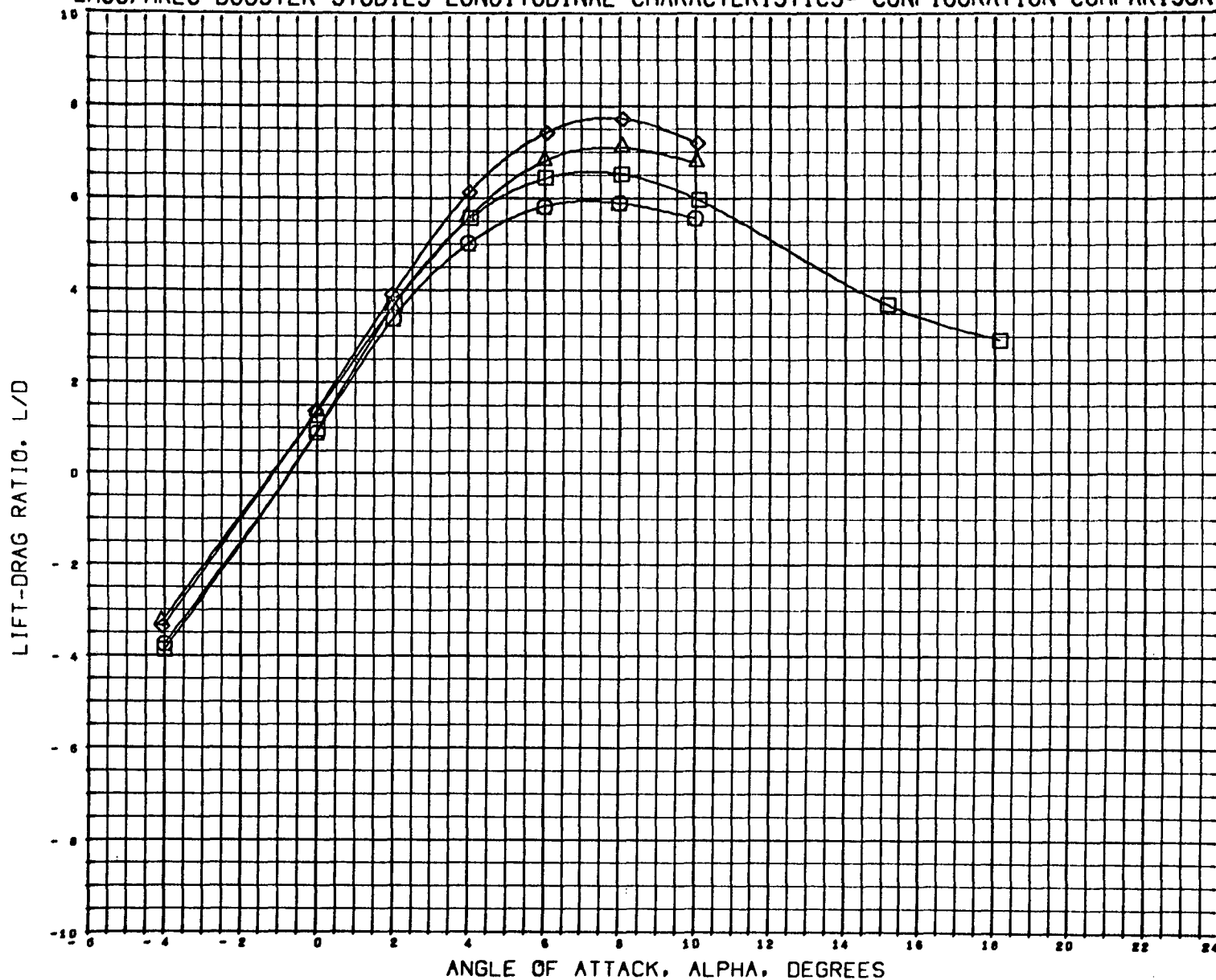
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300H)	MSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H2	0.728	0.000	0.000	0.000	SREF	1.3950 80. FT.
(RN3122)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.728	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3110)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3102)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0107 FEET
						SCALE	0.0190 SCALE

MACH 0.400

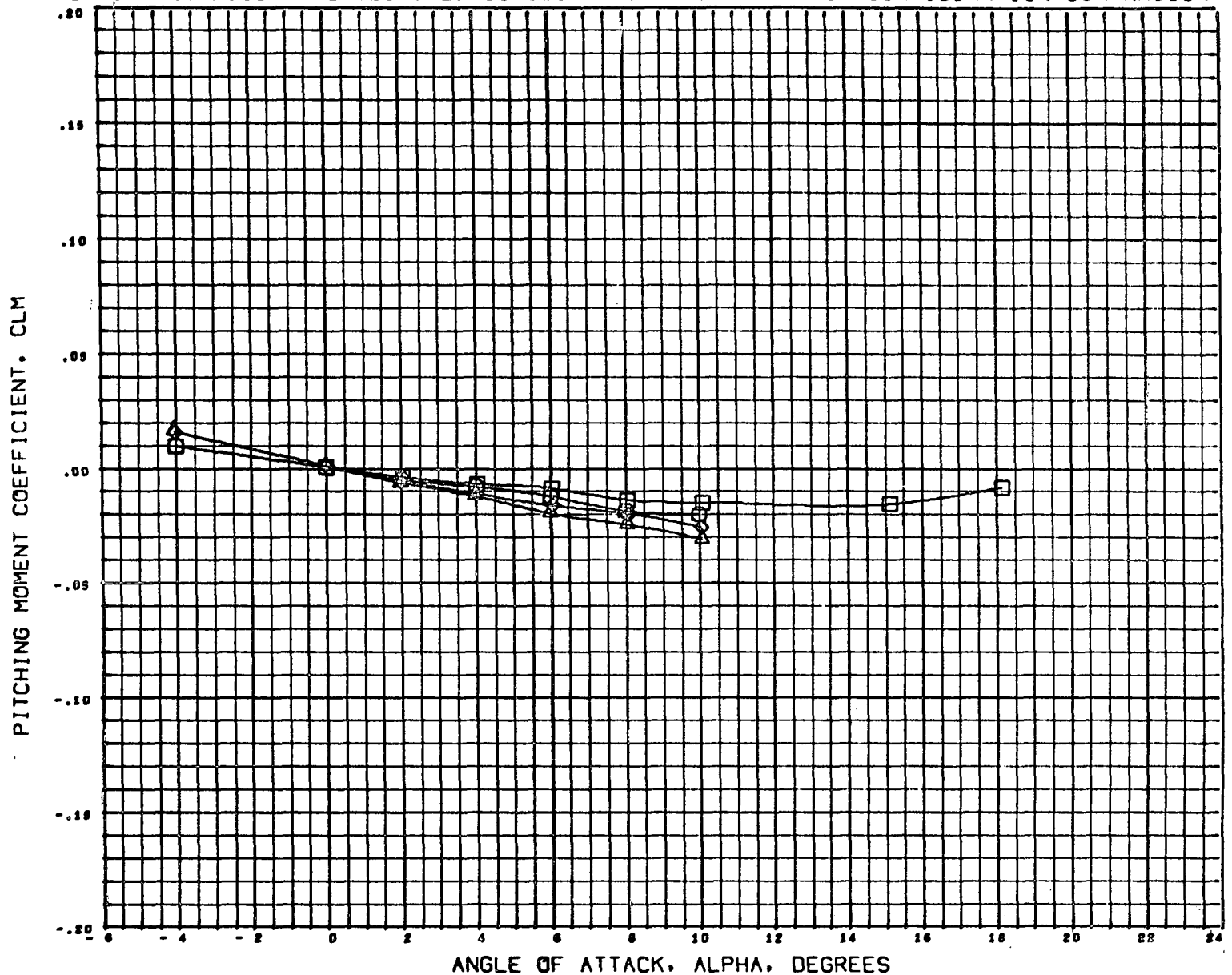
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300H)	MSRDC-3210,MSFC/LM8C BSTR.(PWR-ON) B1C2F2W1V1H2	0.728	0.000	0.000	0.000	SREF	1.3550 80.FT.
(AN3182)	MSRDC-3210,MSFC/LM8C BOOSTER B1C2F2W1V1E2	0.728	0.000	0.000	0.000	LREF	3.4530 FEET
(AN3118)	MSRDC-3210,MSFC/LM8C BOOSTER B1C2F2W1V1E2	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(AN3192)	MSRDC-3210,MSFC/LM8C BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	XMHP	2.5950 FEET
						YMHP	0.0000 FEET
						ZMHP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.400

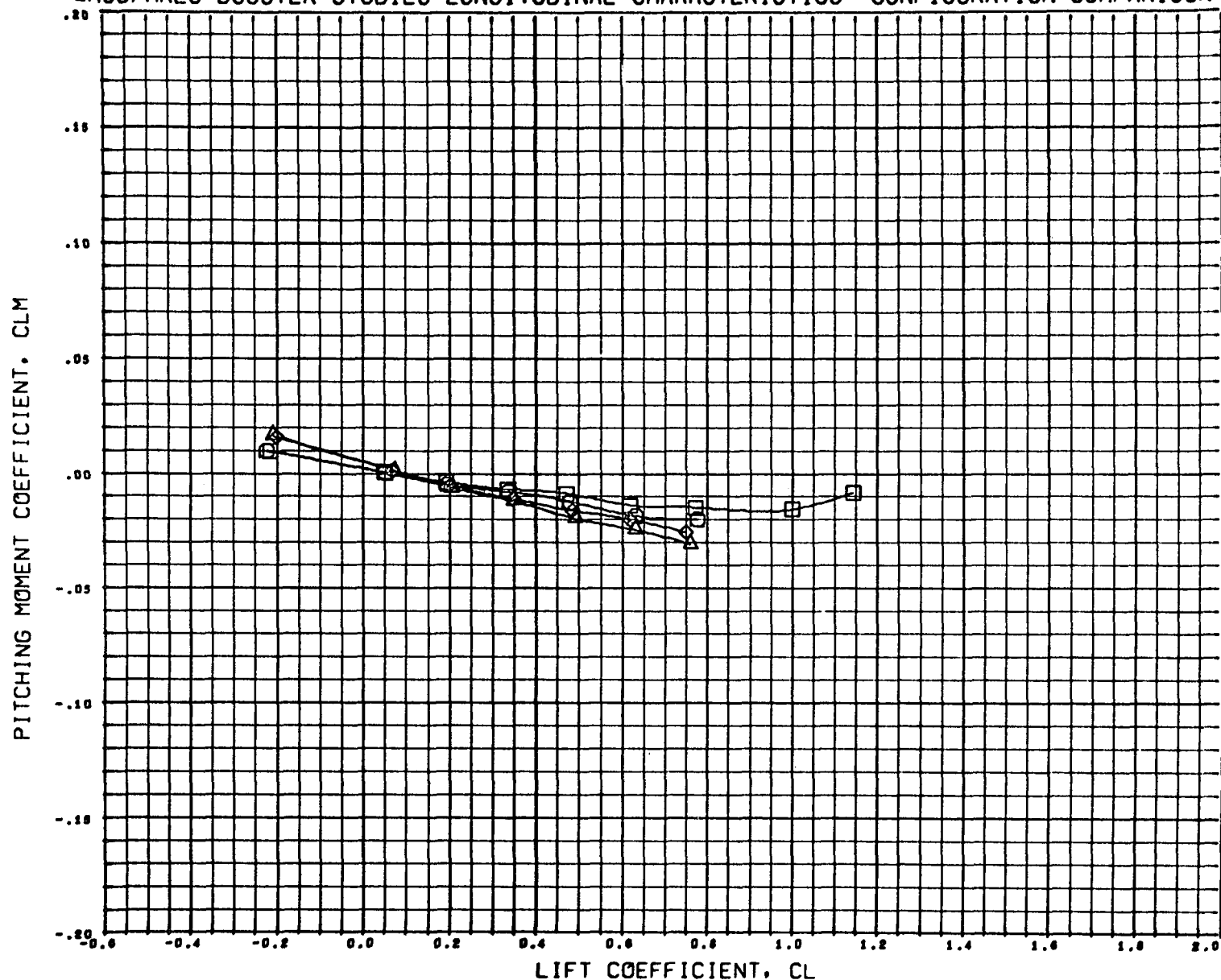
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300N)	MSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H2	0.728	0.000	0.000	0.000	SREF	1.3550 80.FT.
(RN3122)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.728	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3118)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3192)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	XWRP	2.5950 FEET
						YWRP	0.0000 FEET
						ZWRP	0.0167 FEET
						SCALE	0.0130 SCALE

MACH 0.400

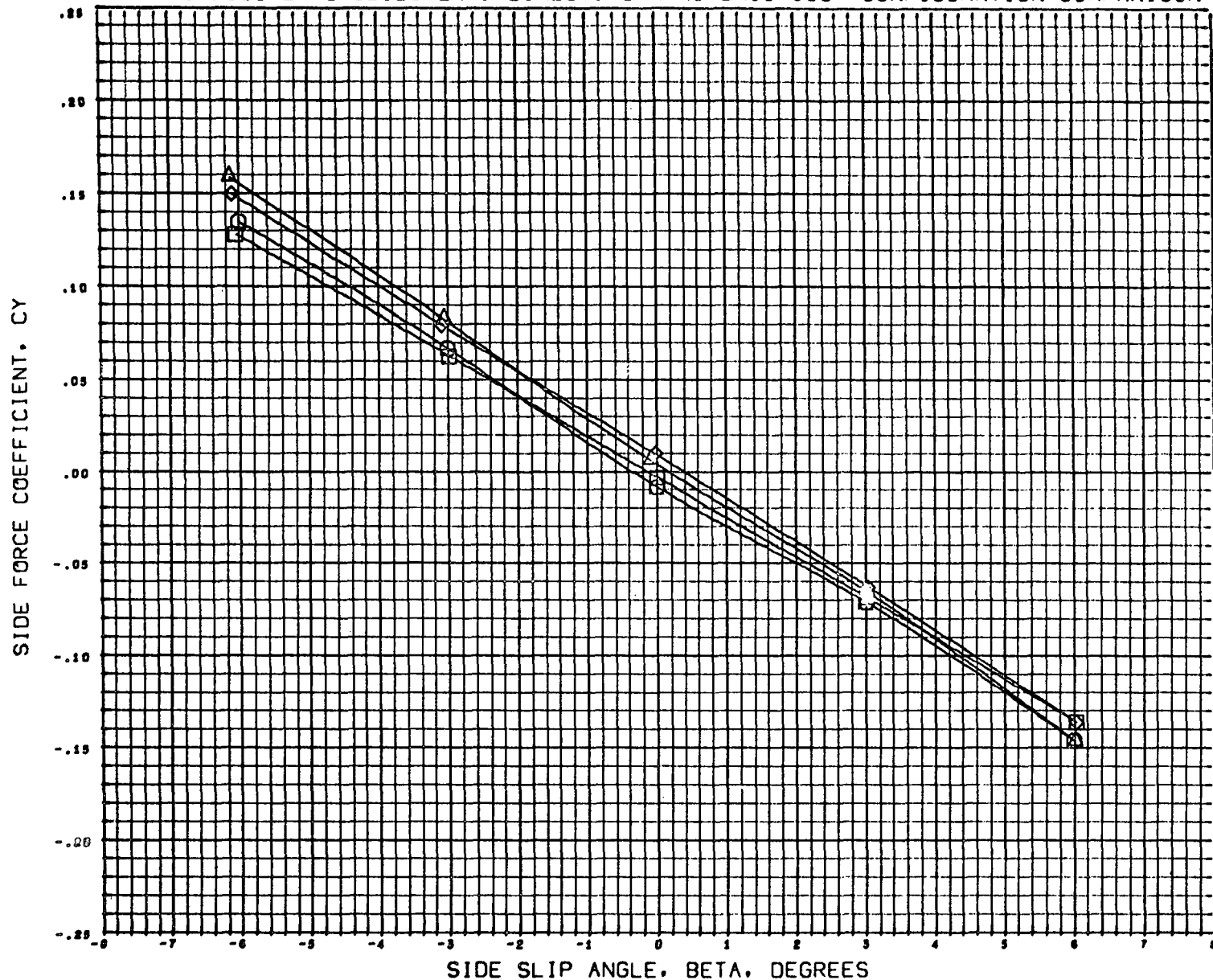
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(ANS00W)	MSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) BIC2F2W1V1H2	0.728	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(RN318Z)	MSRDC-3210, MSFC/LMSC BOOSTER BIC2F2W1V1E2	0.728	0.000	0.000	0.000	LREF	3.4530 FEET
(RN311B)	MSRDC-3210, MSFC/LMSC BOOSTER BIC2F2W1V1E2	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN319Z)	MSRDC-3210, MSFC/LMSC BOOSTER BIC2F2W1V1E2	0.000	0.000	0.000	0.000	XHRP	2.5930 FEET
						YHRP	0.0000 FEET
						ZHRP	0.0187 FEET
						SCALE	0.0180 SCALE

MACH 0.400

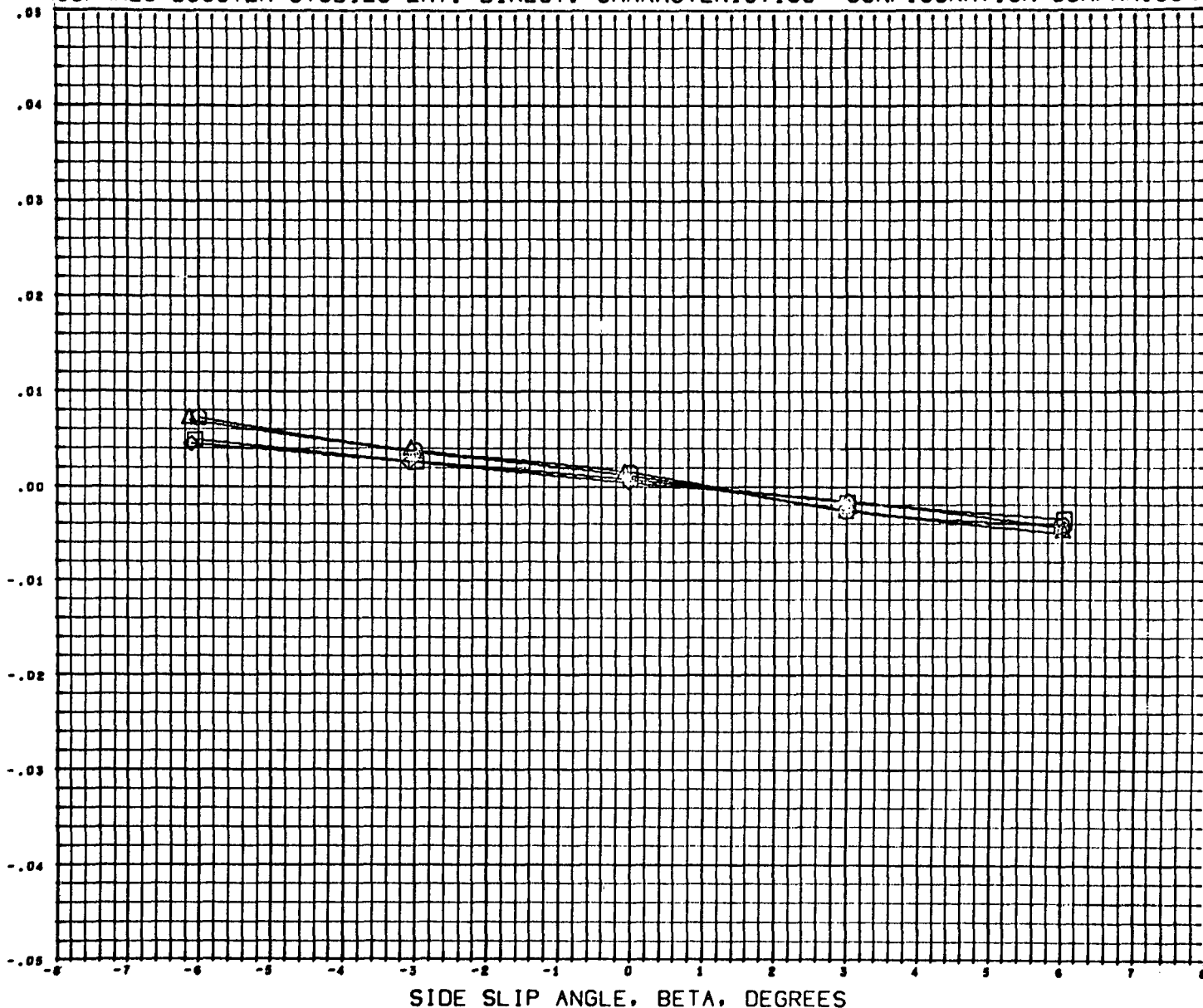
LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION	
(AN3000)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H2	-0.031	0.729	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3123)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E2	-0.031	0.729	0.000	0.000	LREF	3.4530 FEET
(RN3119)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E2	-0.052	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3193)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE
MACH 0.400							

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON

YAWING MOMENT COEFFICIENT, CYN (BODY AXIS)

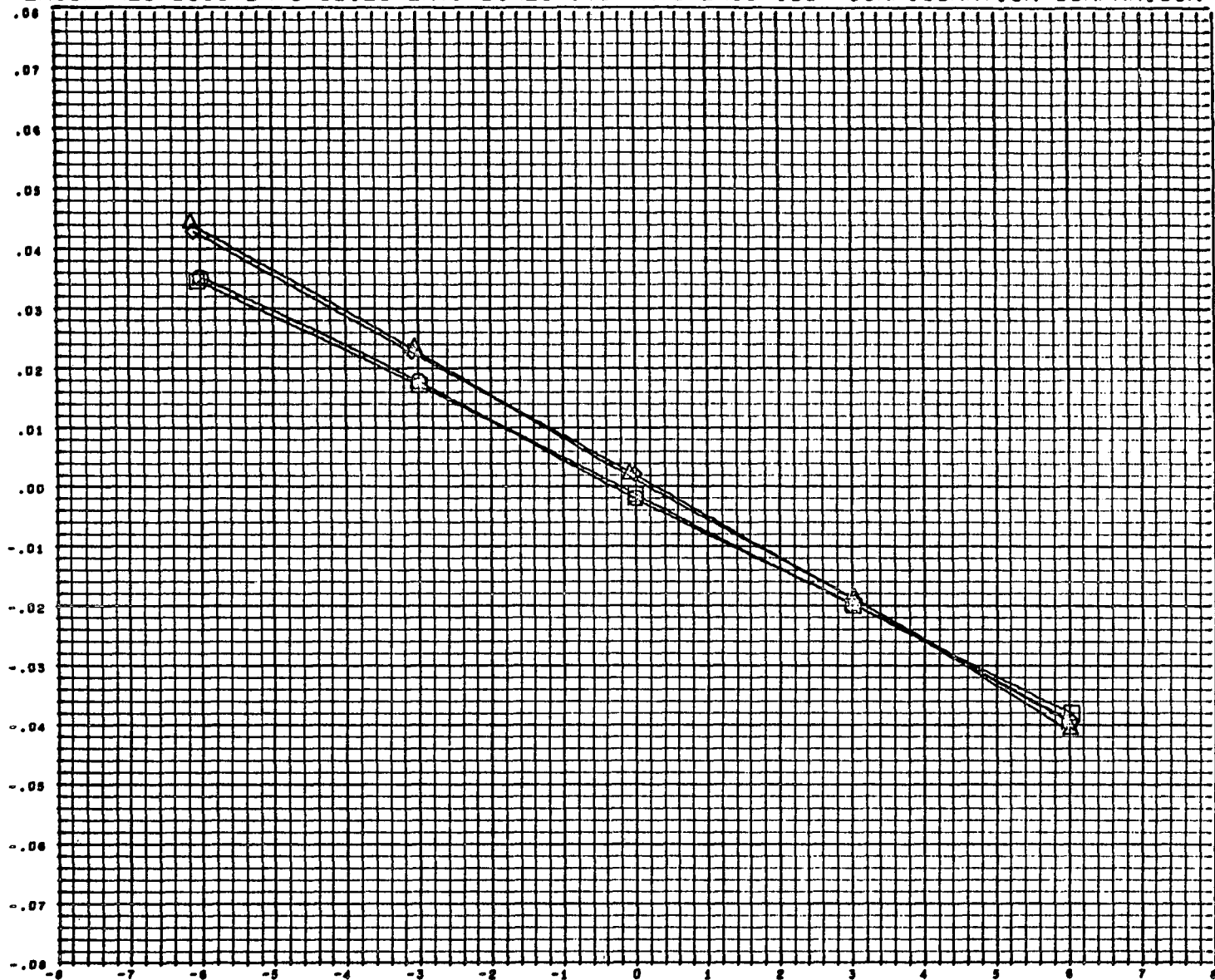


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION	
(ANS000)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H2	-0.031	0.729	0.000	0.000	SREF	1.3550 SQ.FT.
(RNS125)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E2	-0.031	0.729	0.000	0.000	LREF	3.4530 FEET
(RNS119)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E2	-0.052	0.000	0.000	0.000	BREF	3.4530 FEET
(RNS193)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.400

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)

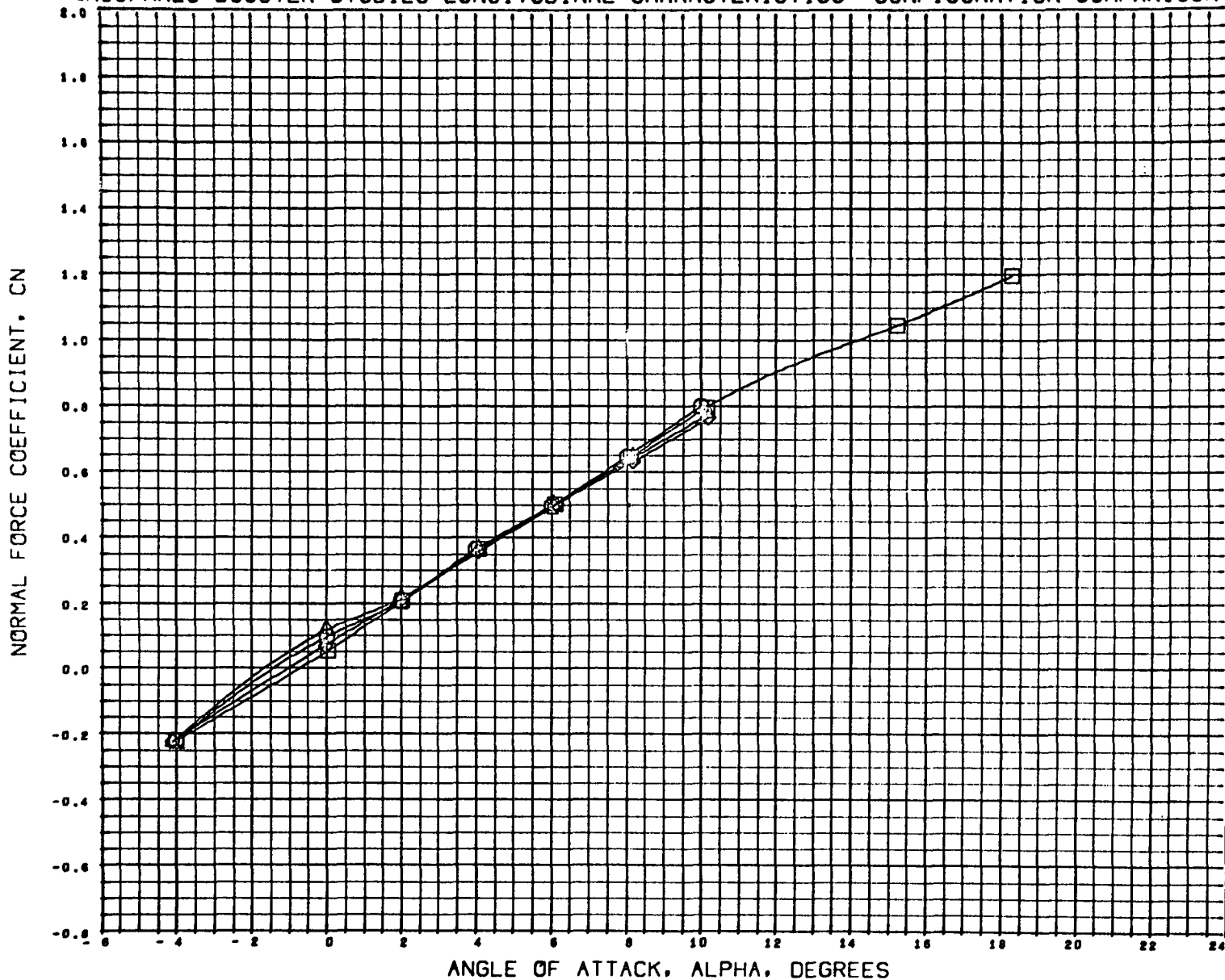


SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION	
(ANS000)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H2	-0.031	0.729	0.000	0.000	SREF	1.3550 SQ.FT.
(RNS123)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E2	-0.031	0.729	0.000	0.000	LREF	3.4530 FEET
(RNS119)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E2	-0.052	0.000	0.000	0.000	BREF	3.4530 FEET
(RNS193)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.400

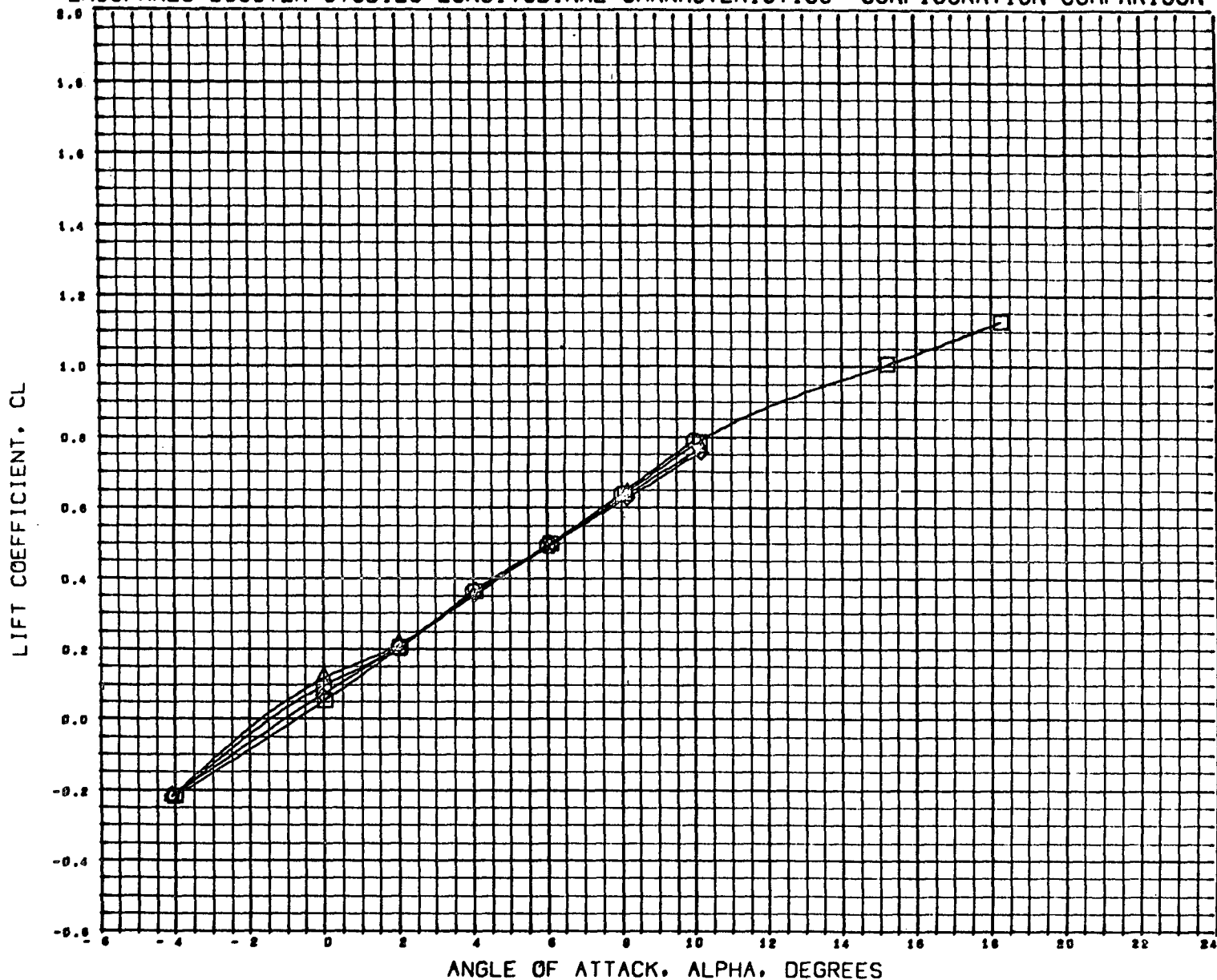
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300N)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H2	0.698	0.000	0.000	0.000	SREF	1.3550 59.FT.
(RN3130)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.698	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3126)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3196)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	XMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.900

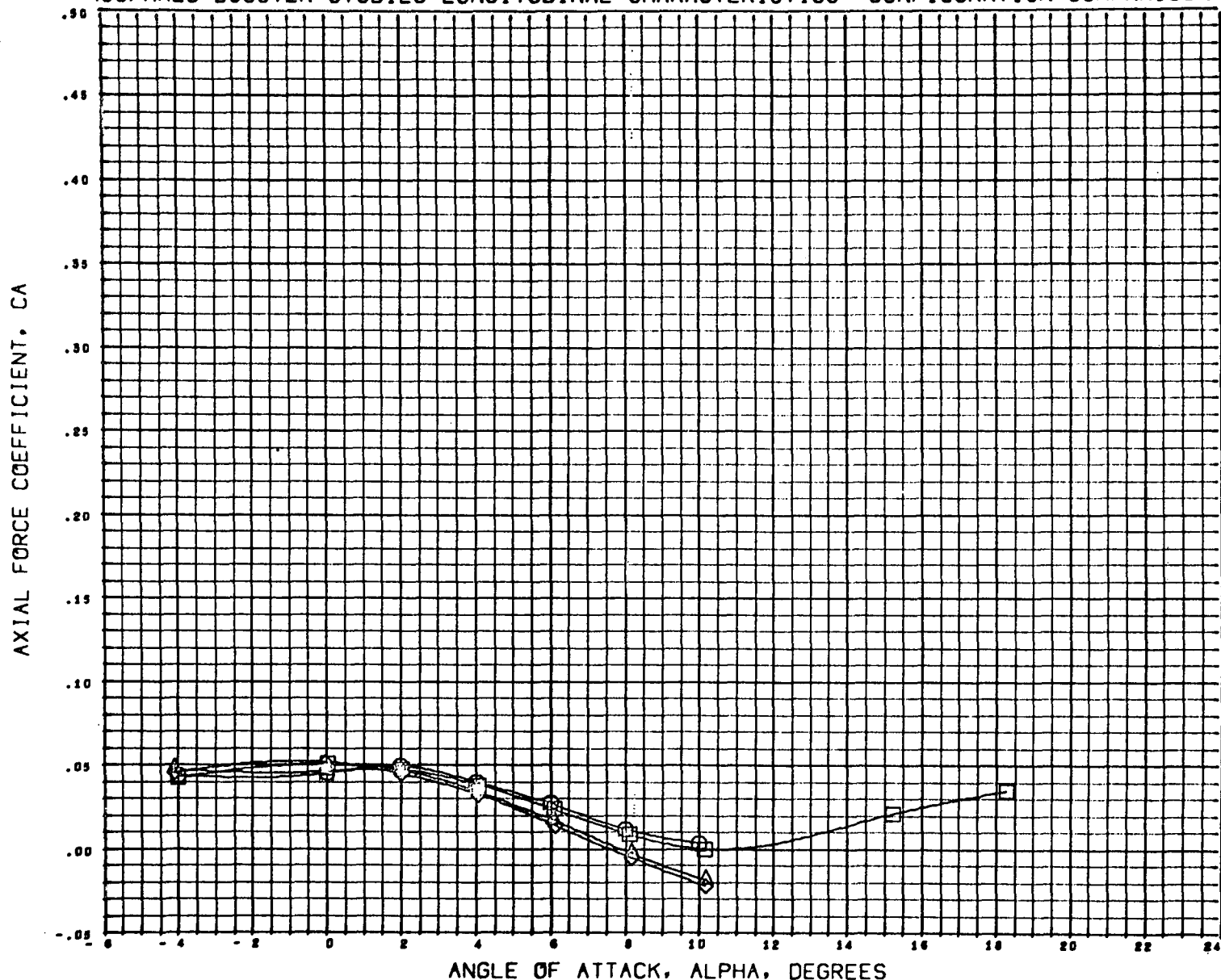
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300N)	NSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H2	0.698	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(RN3180)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.698	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3186)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3188)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	XWRP	2.5950 FEET
						YWRP	0.0000 FEET
						ZWRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.500

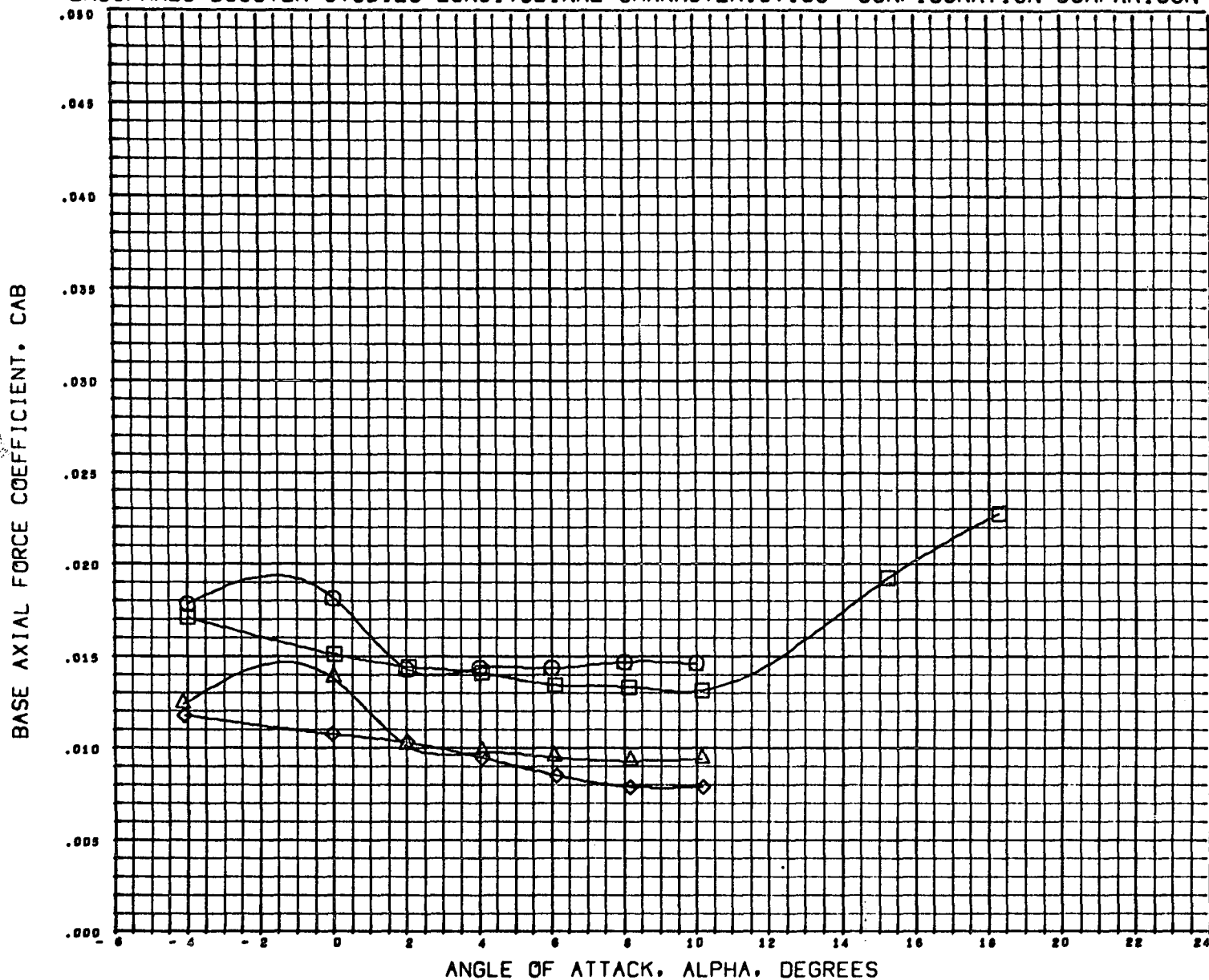
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300N)	○	NSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H2	0.698	0.000	0.000	0.000	SREF	1.3550 80.FT.
(RN3150)	△	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.698	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3126)	◇	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3196)	□	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	XMRP	2.5950 FEET
							YMRP	0.0000 FEET
							ZMRP	0.0187 FEET
							SCALE	0.0150 SCALE

MACH 0.500

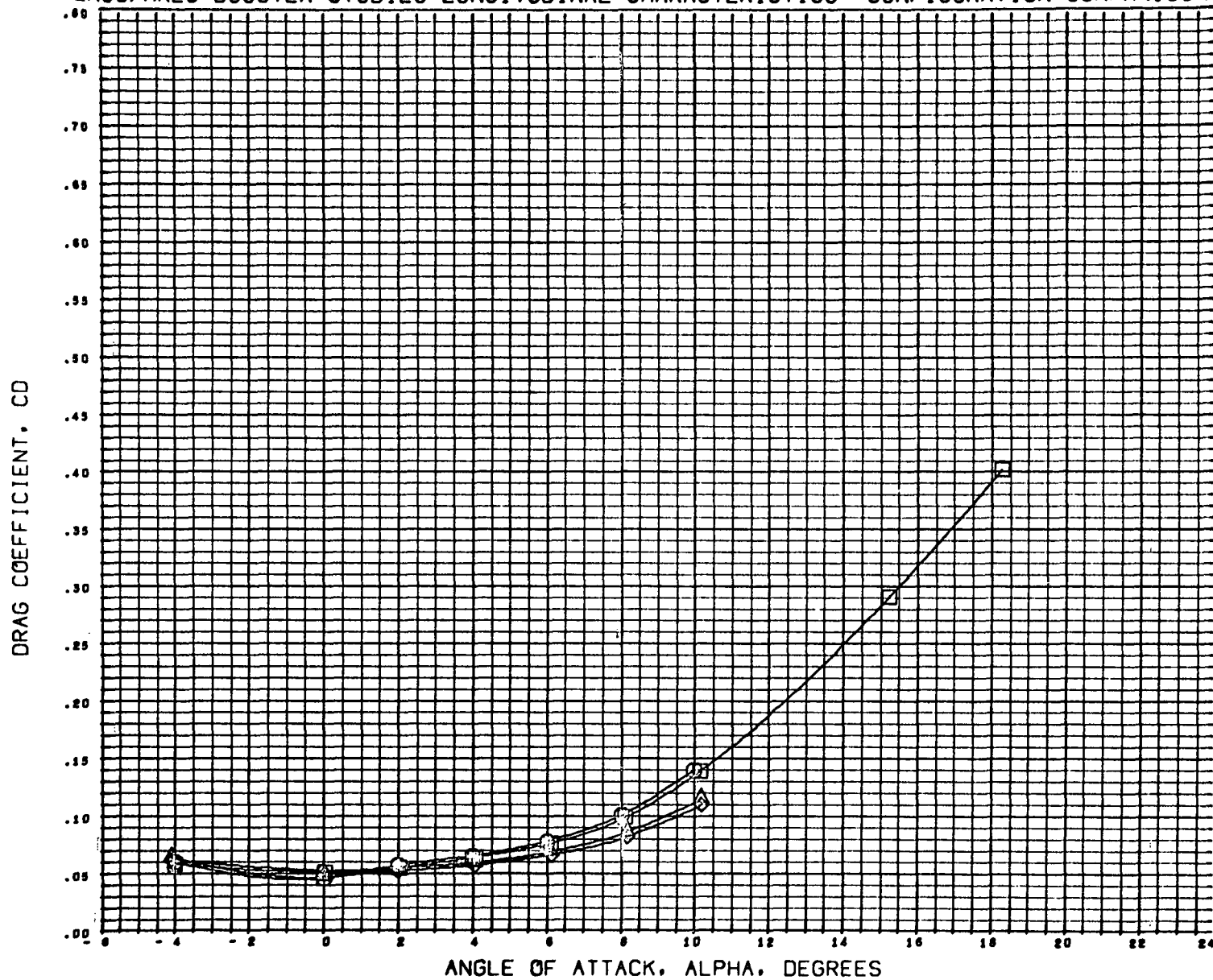
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300N)	NSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H2	0.698	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(RN3130)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.698	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3124)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3196)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.500

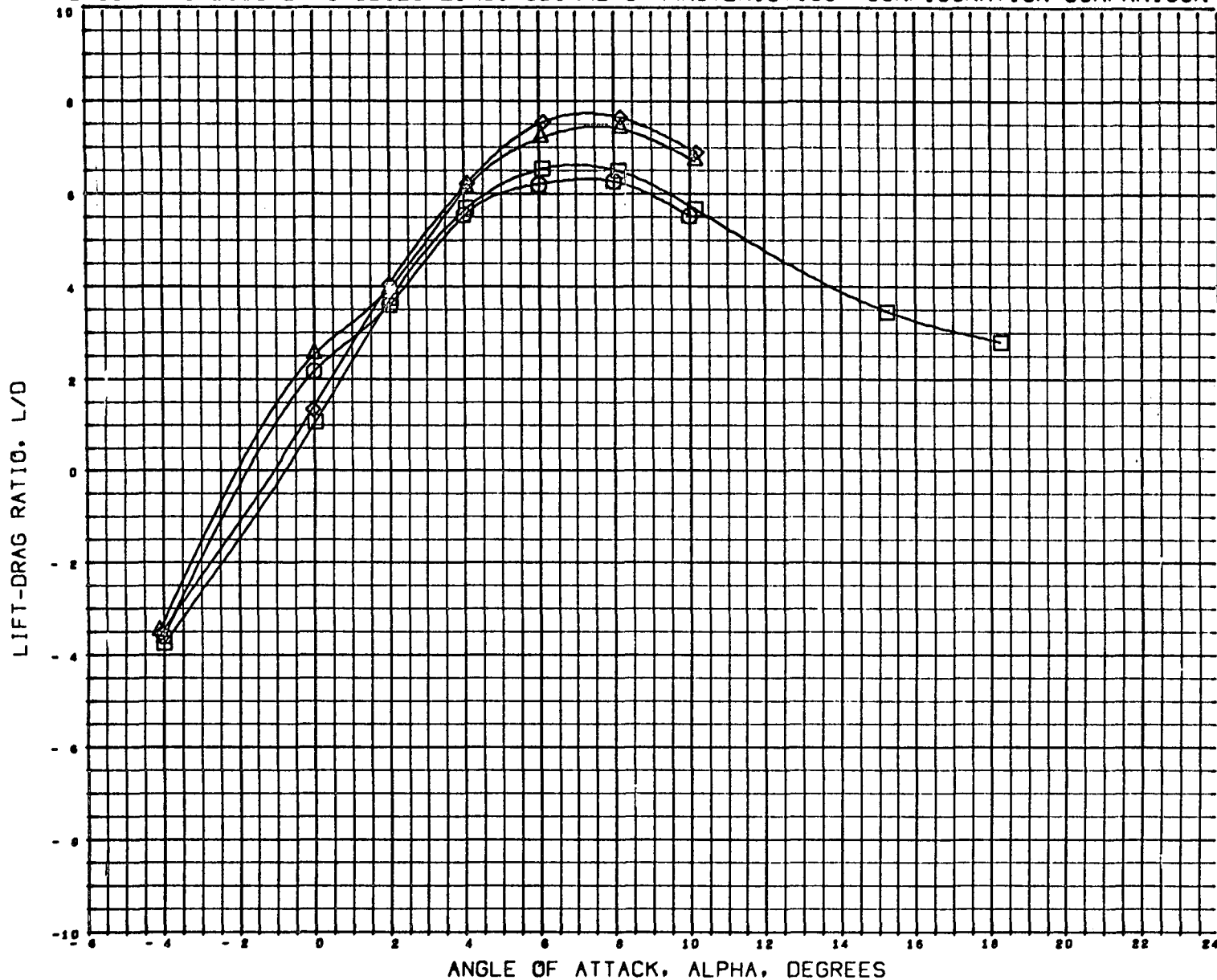
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300N)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H2	0.698	0.000	0.000	0.000	SREF	1.3550 80.FT.
(RN3130)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.698	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3126)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3106)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.900

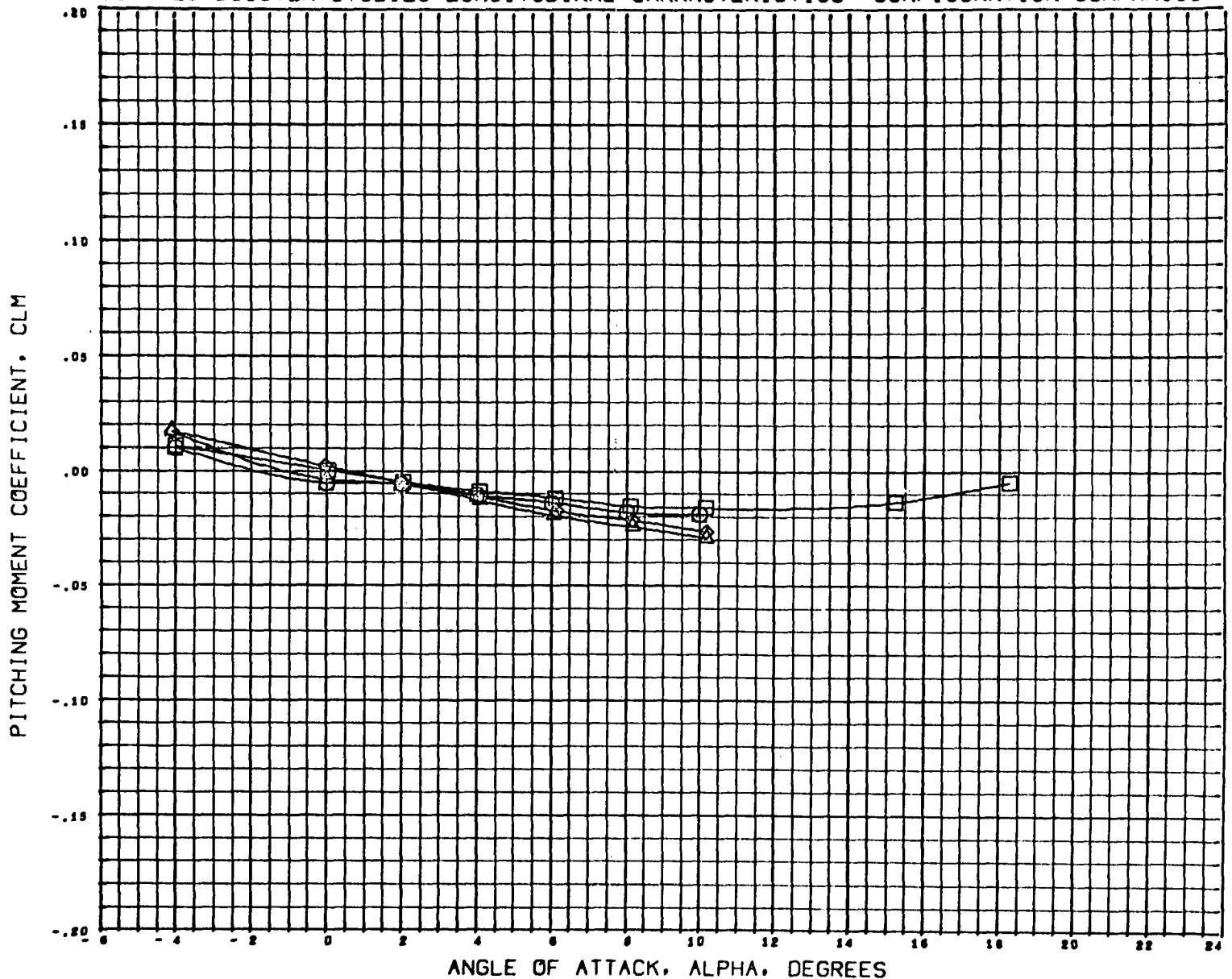
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300N)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H2	0.698	0.000	0.000	0.000	SREF	1.3550 80.FT.
(RN3130)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.698	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3126)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3196)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	XMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.900

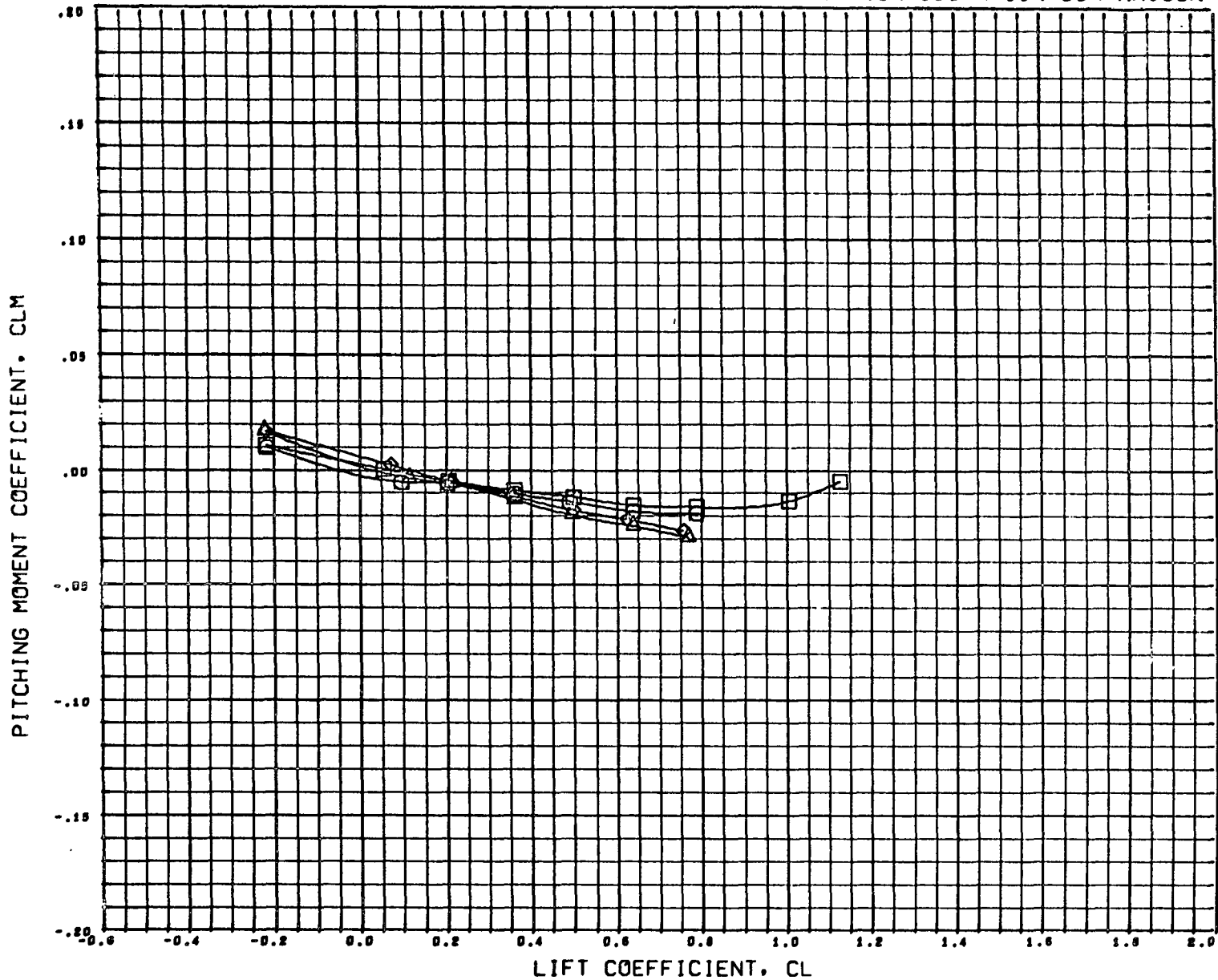
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300N)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H2	0.698	0.000	0.000	0.000	SREF	1.3550 80.FT.
(RN3130)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.698	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3126)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3196)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.000	0.000	0.000	0.000	XHRP	2.5950 FEET
						YHRP	0.0000 FEET
						ZHRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.500

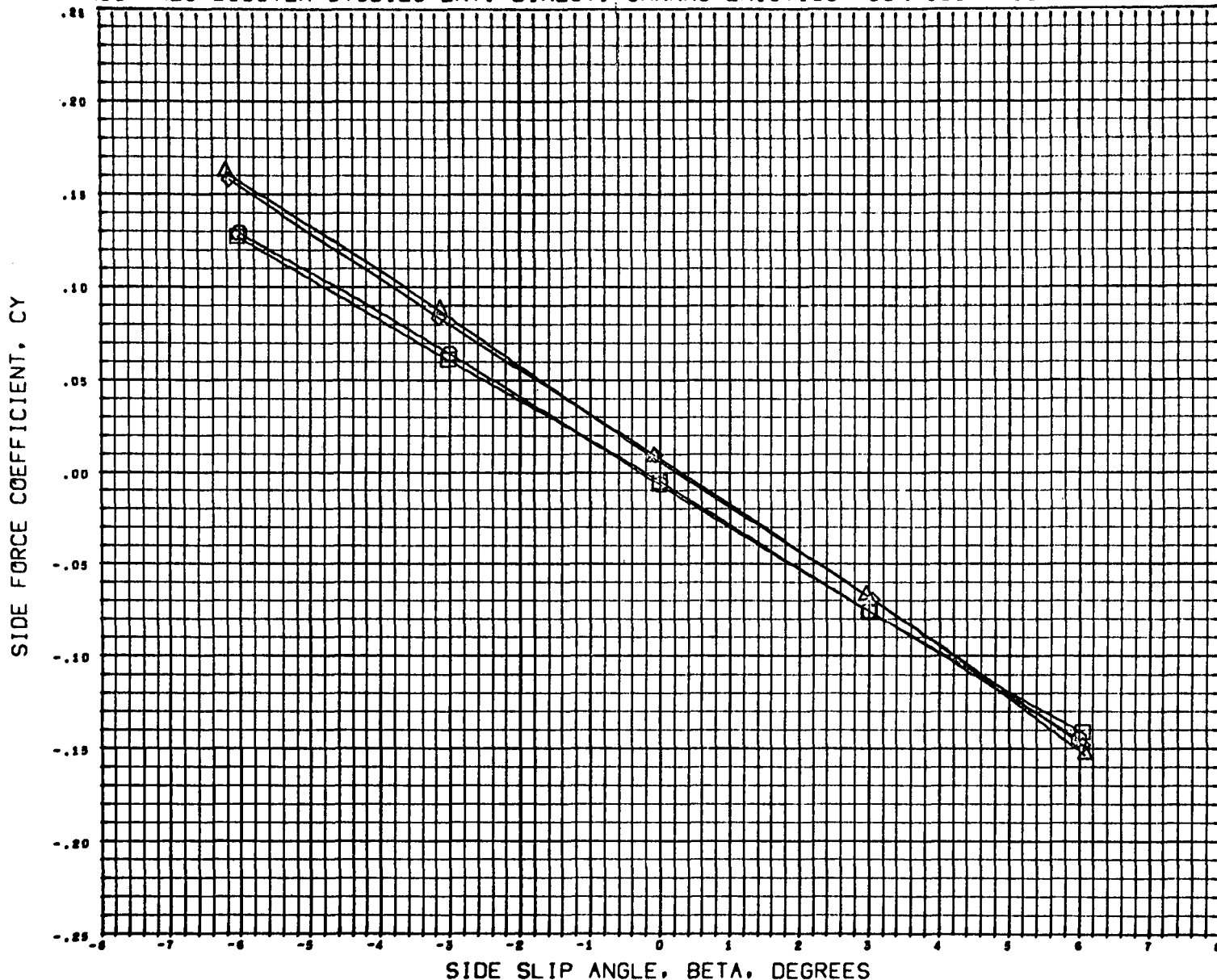
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300N)	MSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H2	0.698	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(RN3130)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.698	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3126)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E2	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3196)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.900

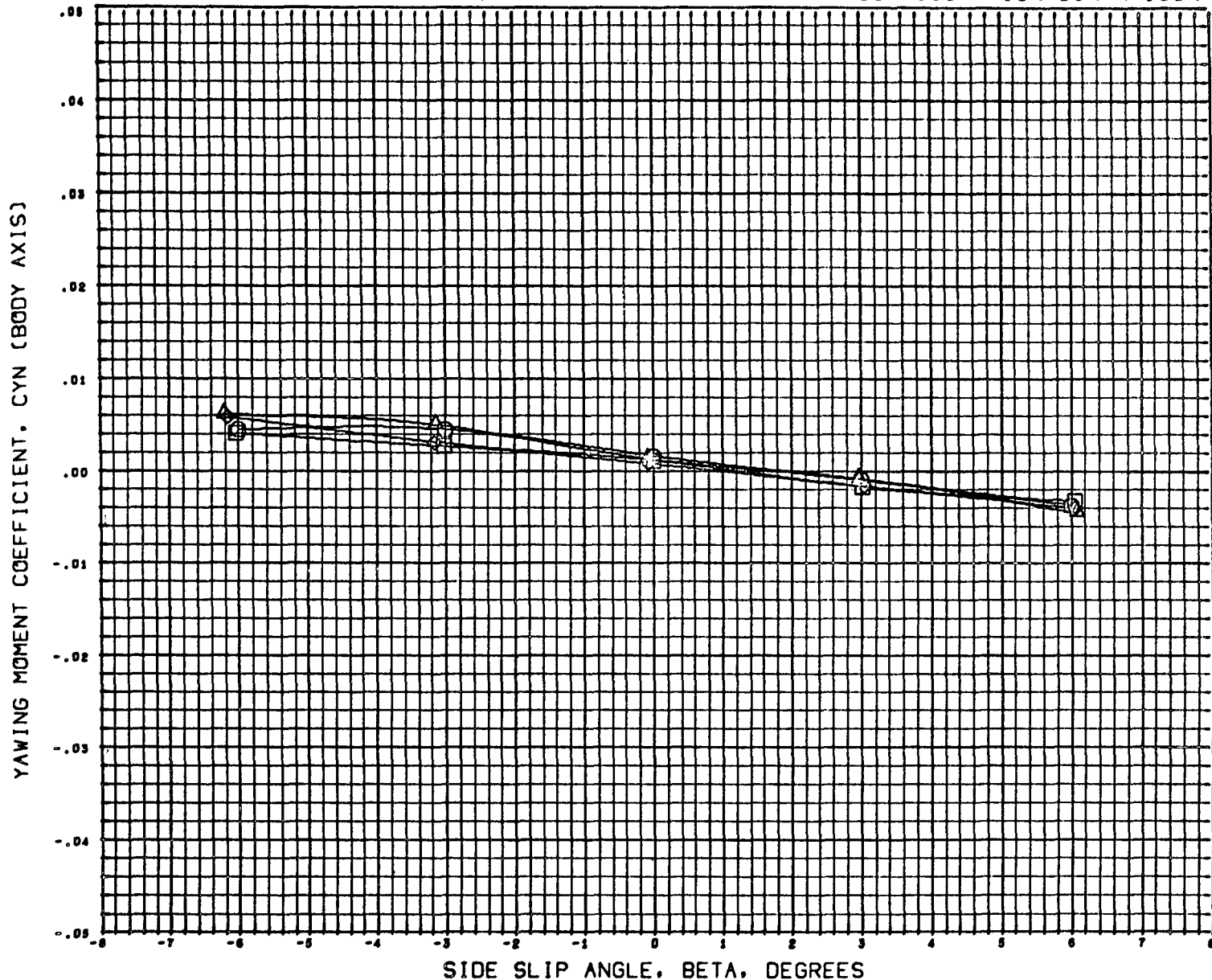
LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION	
(ANS00P)	MSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2M1V1H2	-0.012	0.702	0.000	0.000	SREF	1.3550 80.FT.
(RNS131)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2M1V1E2	-0.012	0.702	0.000	0.000	LREF	3.4530 FEET
(RNS127)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2M1V1E2	-0.023	0.000	0.000	0.000	BREF	3.4530 FEET
(RNS197)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2M1V1G2	0.011	0.000	0.000	0.000	XHRP	2.5950 FEET
						YHRP	0.0000 FEET
						ZHRP	0.0187 FEET
						SCALE	0.0190 SCALE

MACH 0.900

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON

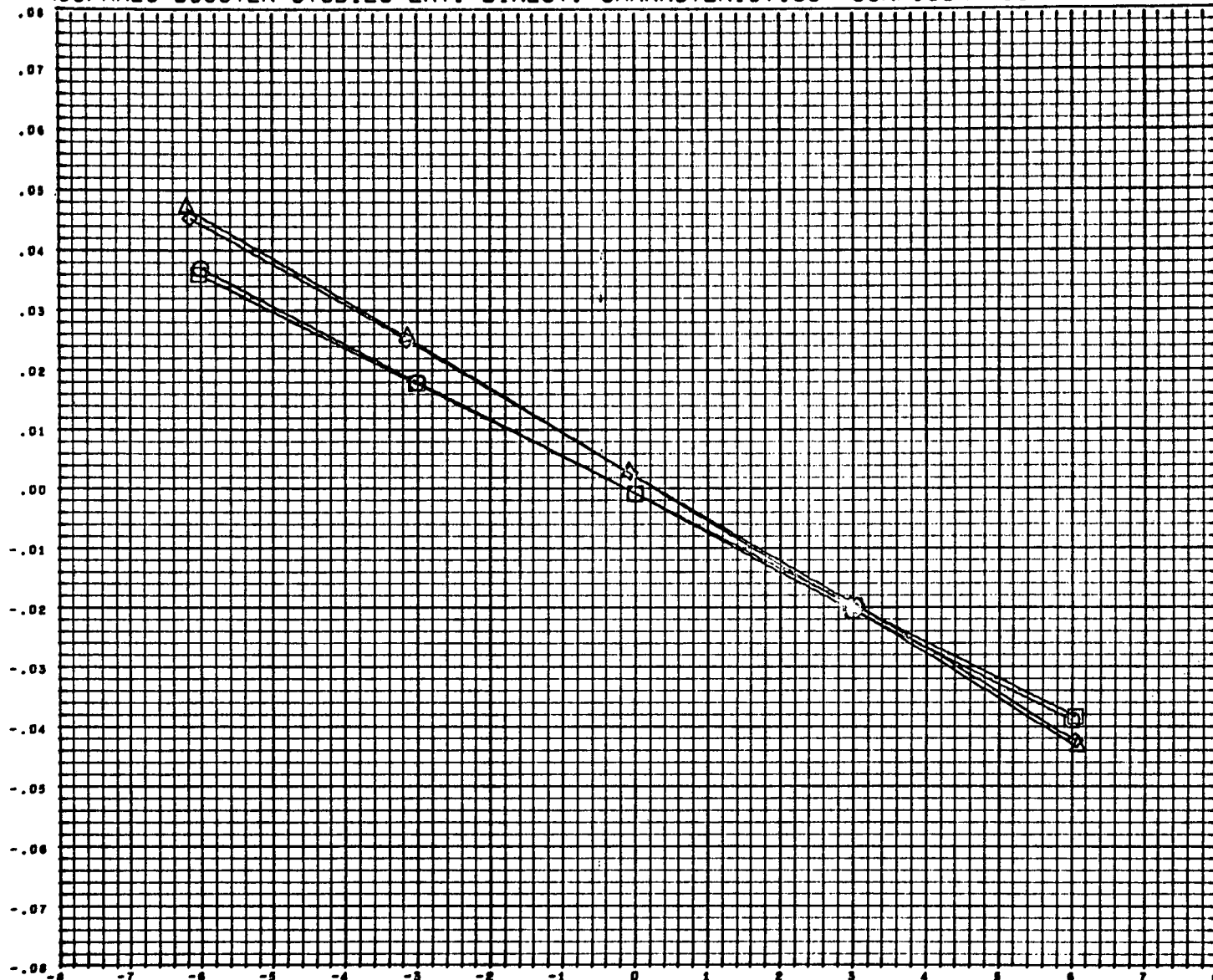


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION	
(AN300P)	MSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H2	-0.012	0.702	0.000	0.000	SREF	1.3950 80.FT.
(RN3131)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E2	-0.012	0.702	0.000	0.000	LREF	3.4930 FEET
(RN3127)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E2	-0.023	0.000	0.000	0.000	BREF	3.4930 FEET
(RN3197)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.011	0.000	0.000	0.000	XMRP	2.3950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.500

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)

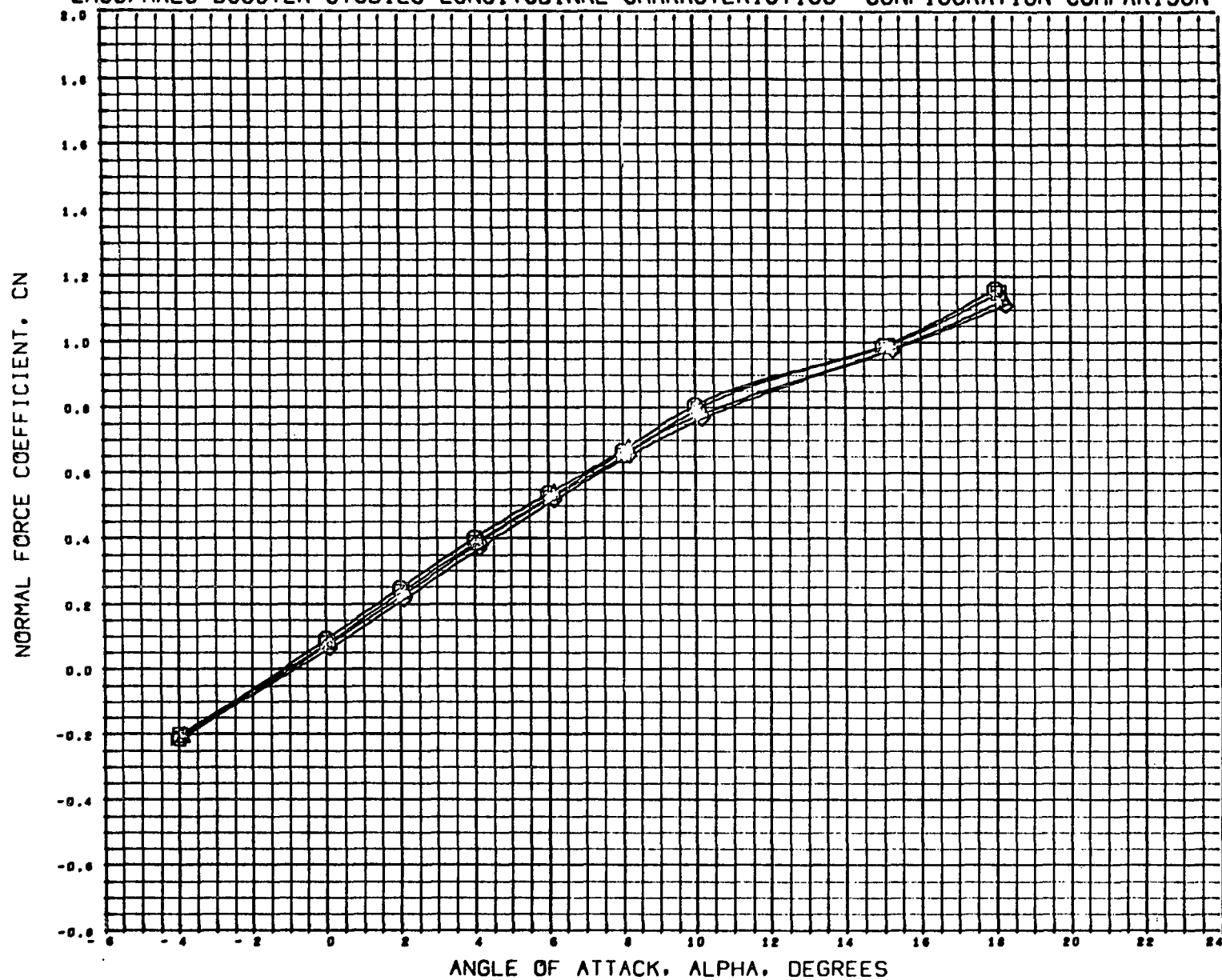


SIDE SLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION	
(AN300P)	NSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H2	-0.012	0.702	0.000	0.000	SREF	1.3550 90.FT.
(RN3131)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E2	-0.012	0.702	0.000	0.000	LREF	3.4530 FEET
(RN3127)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E2	-0.023	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3197)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.011	0.000	0.000	0.000	XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.900

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

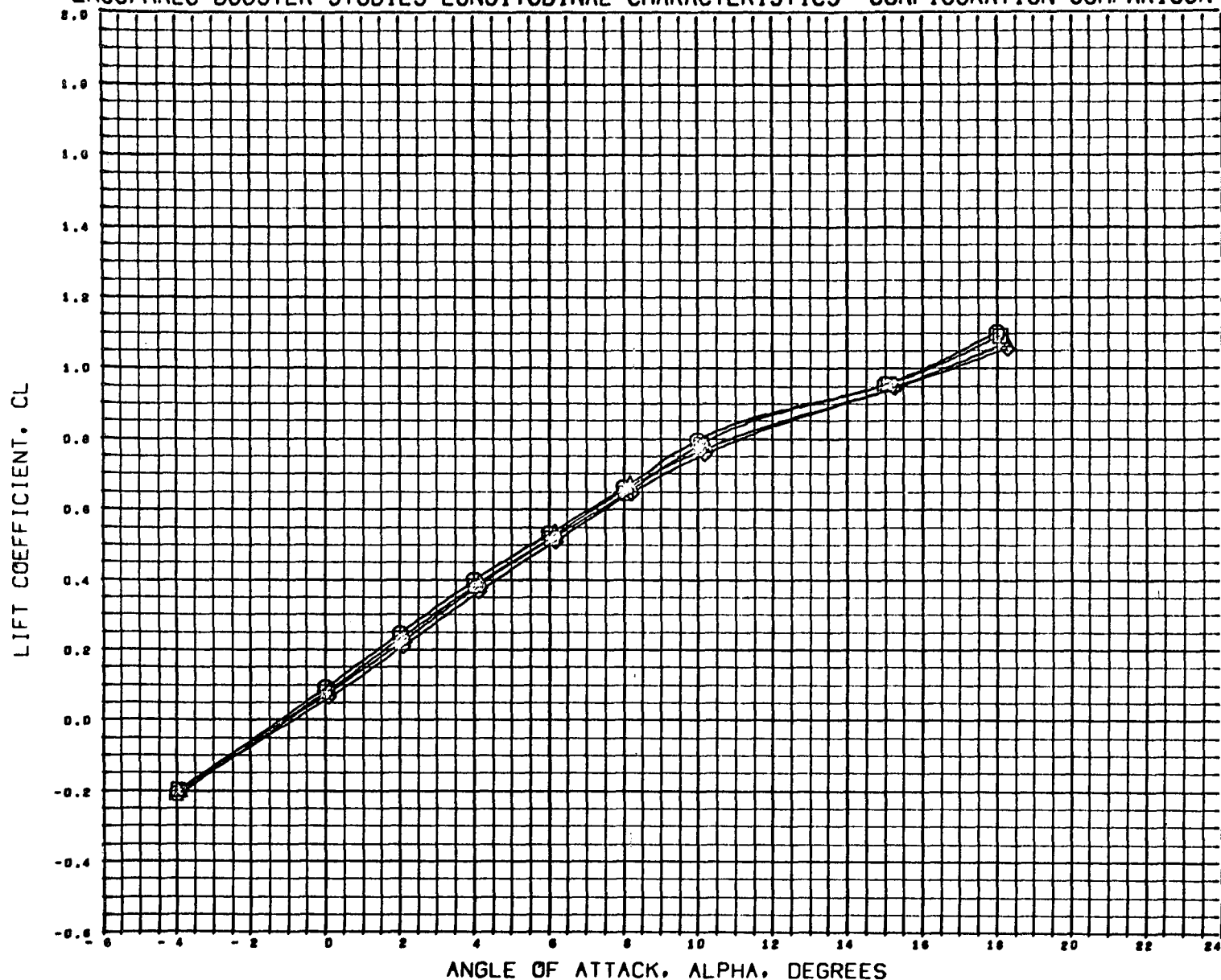


ANGLE OF ATTACK, ALPHA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN3008)	MSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H1	0.734	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(RN3146)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.734	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3142)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.000	0.000	0.000	0.000	SREF	3.4530 FEET
(RN3202)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G1	0.000	0.000	0.000	0.000	XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.400

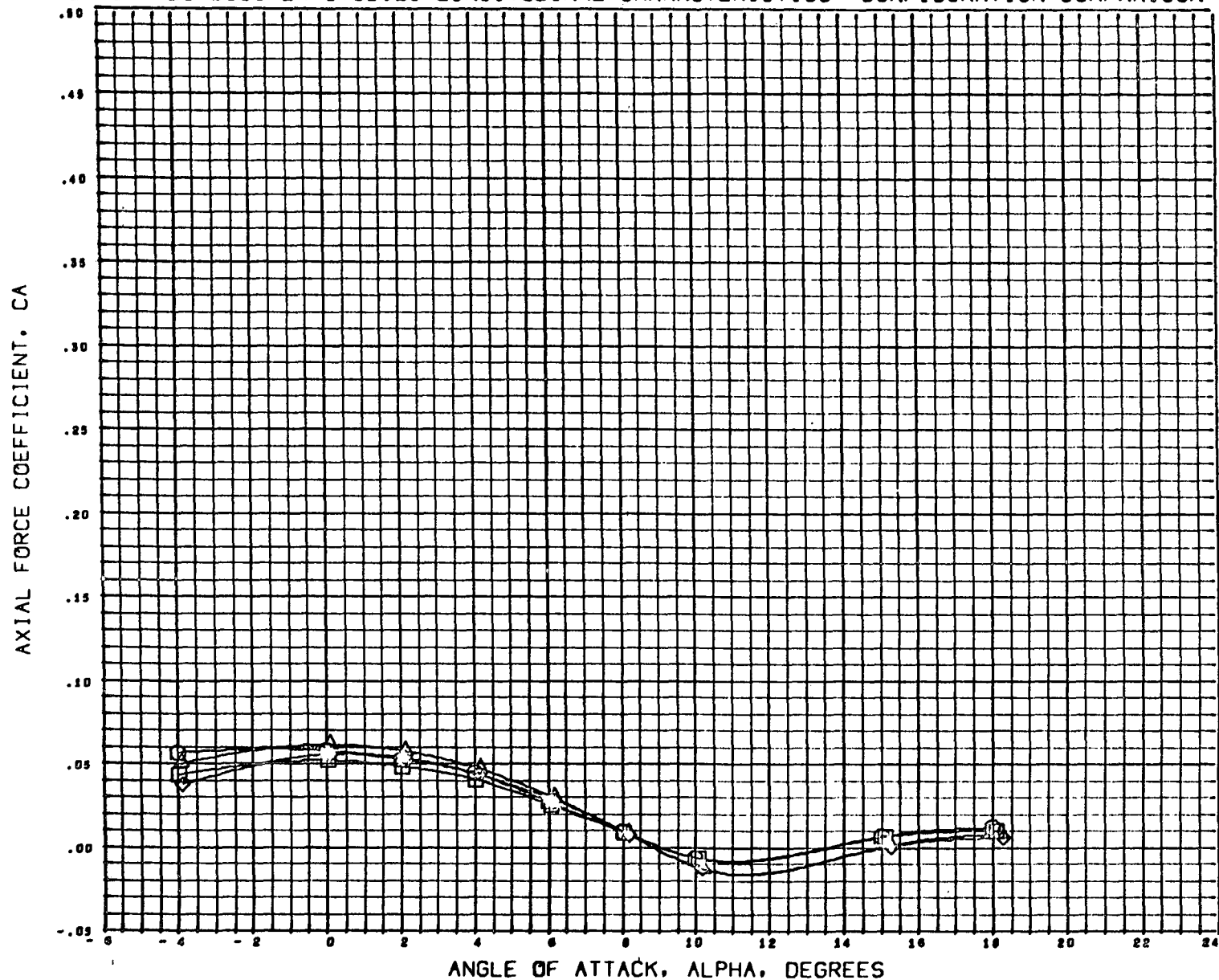
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(1AN3000)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H1	0.734	0.000	0.000	0.000	BREF	1.3950 SQ.FT.
(1AN3140)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.734	0.000	0.000	0.000	LREF	3.4530 FEET
(1AN3142)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(1AN3202)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G1	0.000	0.000	0.000	0.000	XMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.400

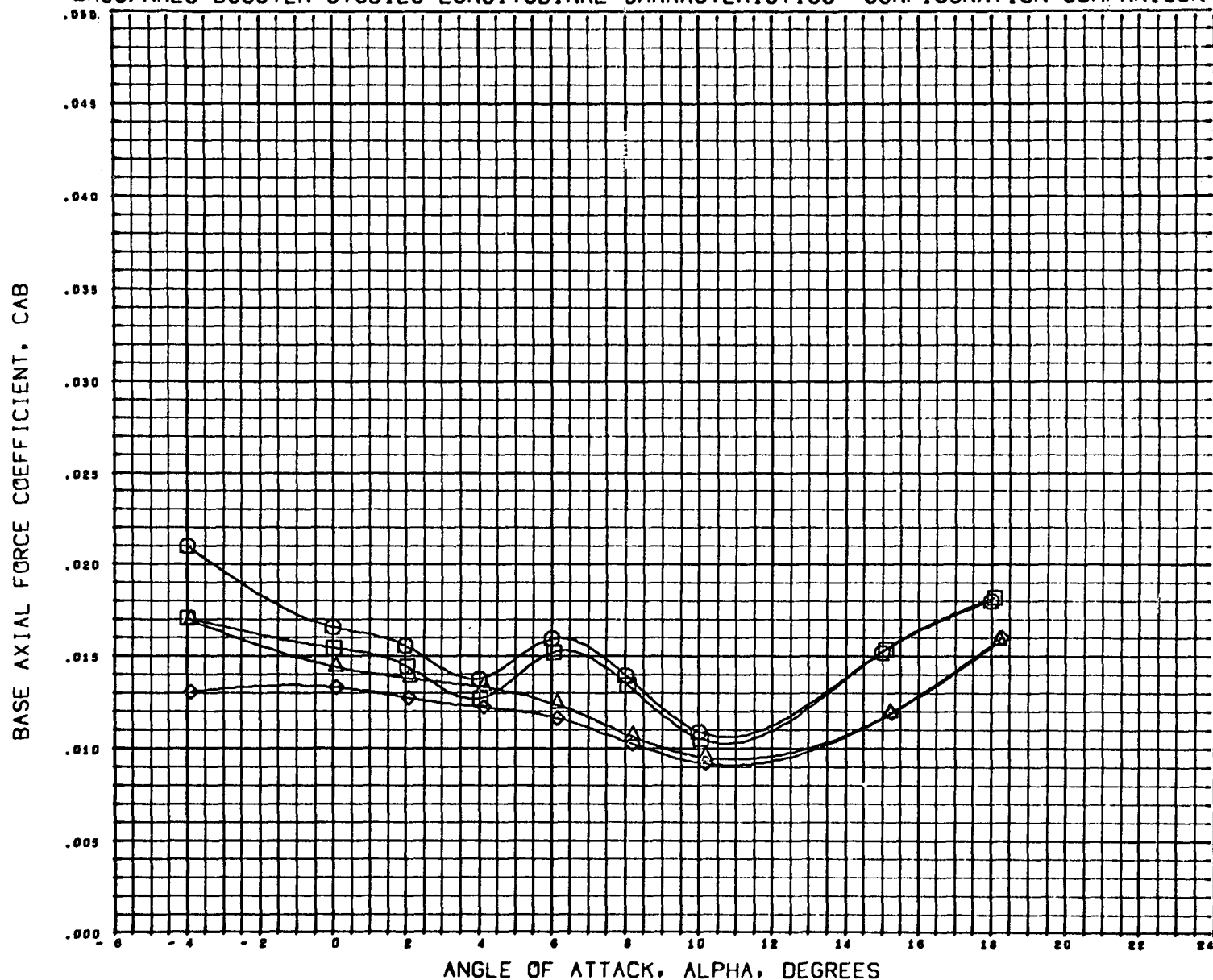
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN3008)	○	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H1	0.734	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3146)	△	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.734	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3142)	◇	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3202)	□	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G1	0.000	0.000	0.000	0.000	XMRP	2.5950 FEET
							YMRP	0.0000 FEET
							ZMRP	0.0187 FEET
							SCALE	0.0150 SCALE

MACH 0.400

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

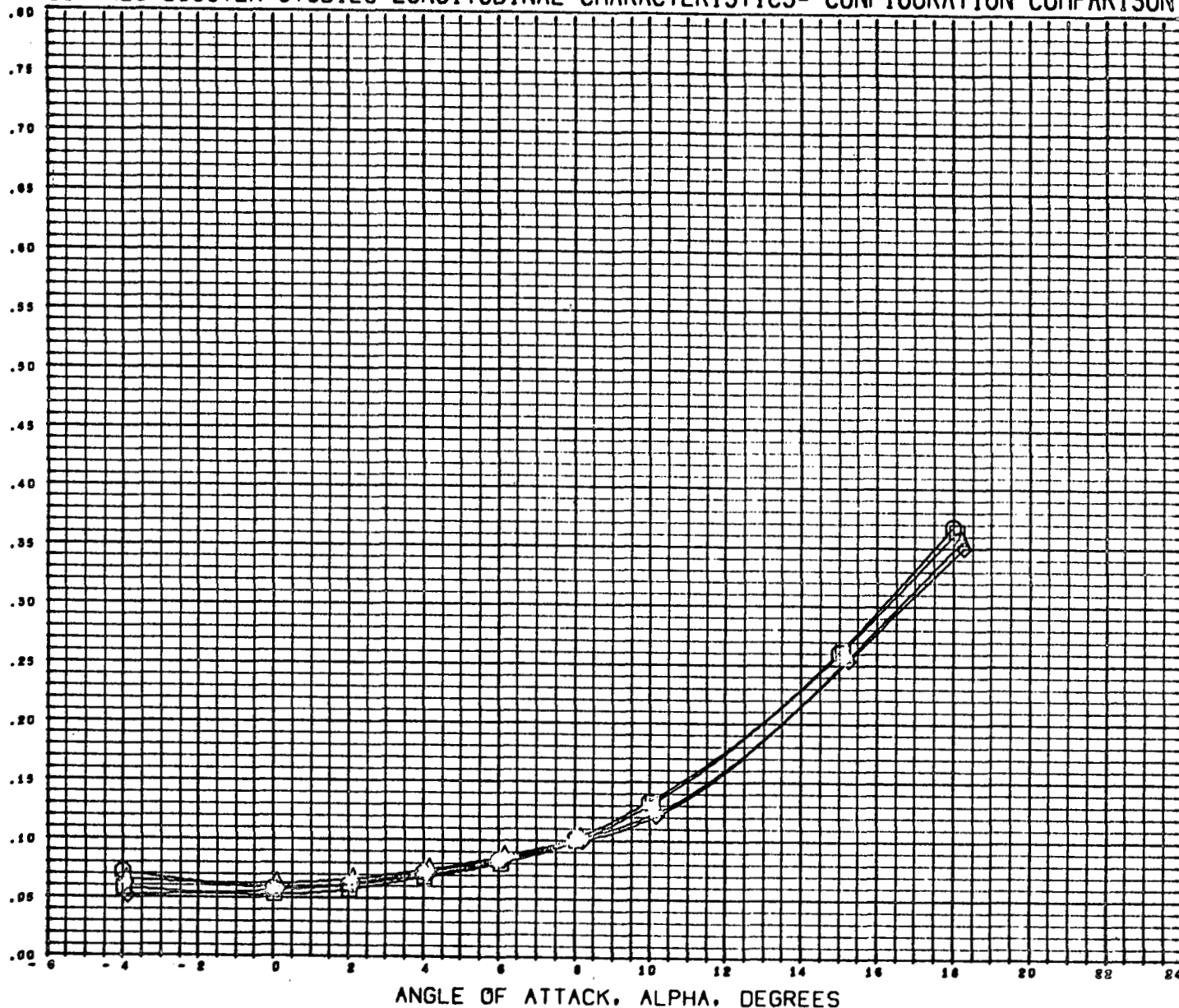


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN3000)	○	MSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H1	0.734	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3140)	□	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.734	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3142)	△	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3202)	◇	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G1	0.000	0.000	0.000	0.000	XHRP	2.9950 FEET
							YHRP	0.0000 FEET
							ZHRP	0.0107 FEET
							SCALE	0.0150 SCALE

HACH 0.400

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

DRAG COEFFICIENT, CD



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN3008)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H1	0.734	0.000	0.000	0.000	SREF	1.3550 80.FT.
(RN3146)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.734	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3148)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3202)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G1	0.000	0.000	0.000	0.000	XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

WACH 0.400

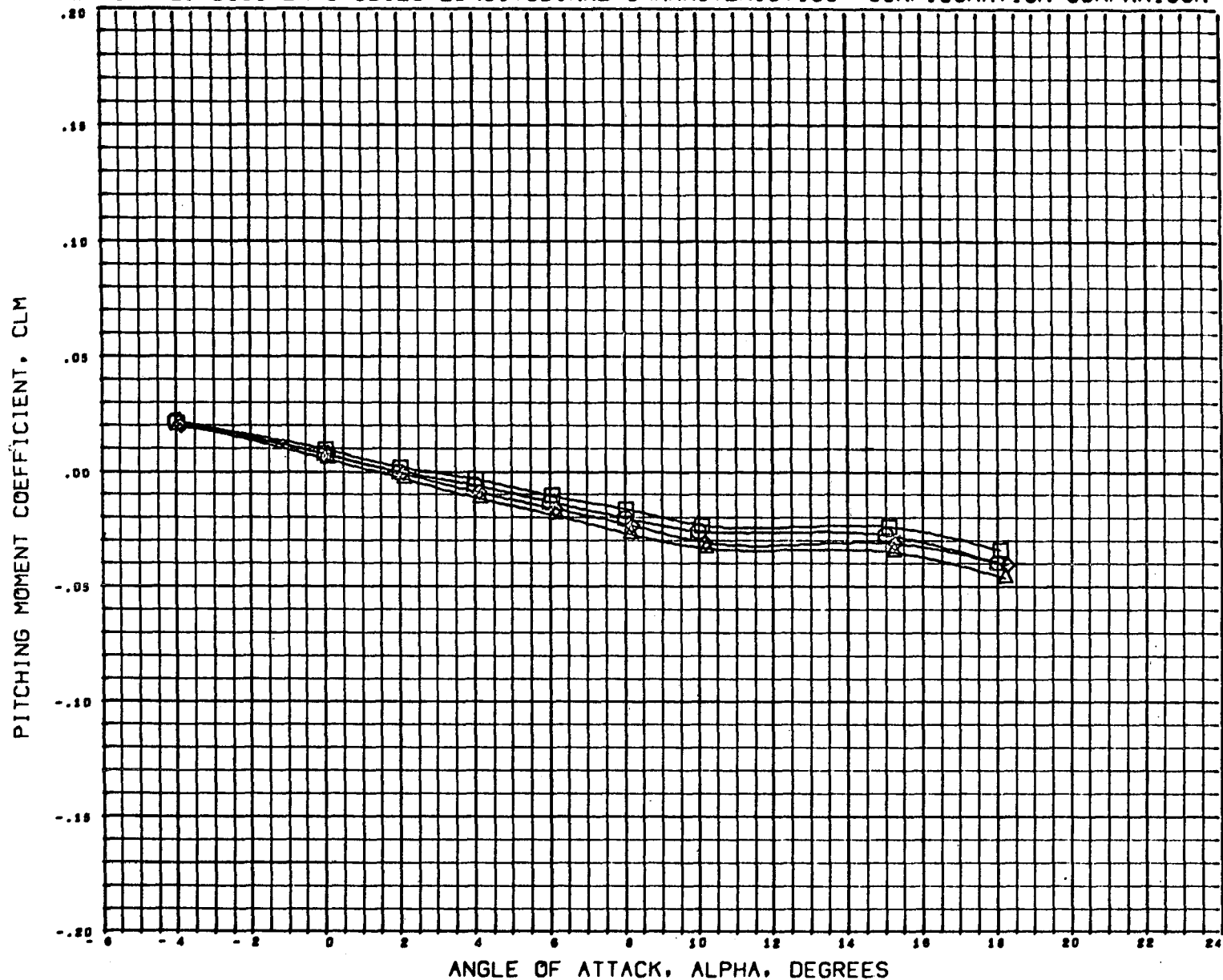
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN3000)	MSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H1	0.734	0.000	0.000	0.000	SREF	1.3550 80. FT.
(RN3146)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.734	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3142)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.000	0.000	0.000	0.000	SREF	3.4530 FEET
(RN3202)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.000	0.000	0.000	0.000	XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.400

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

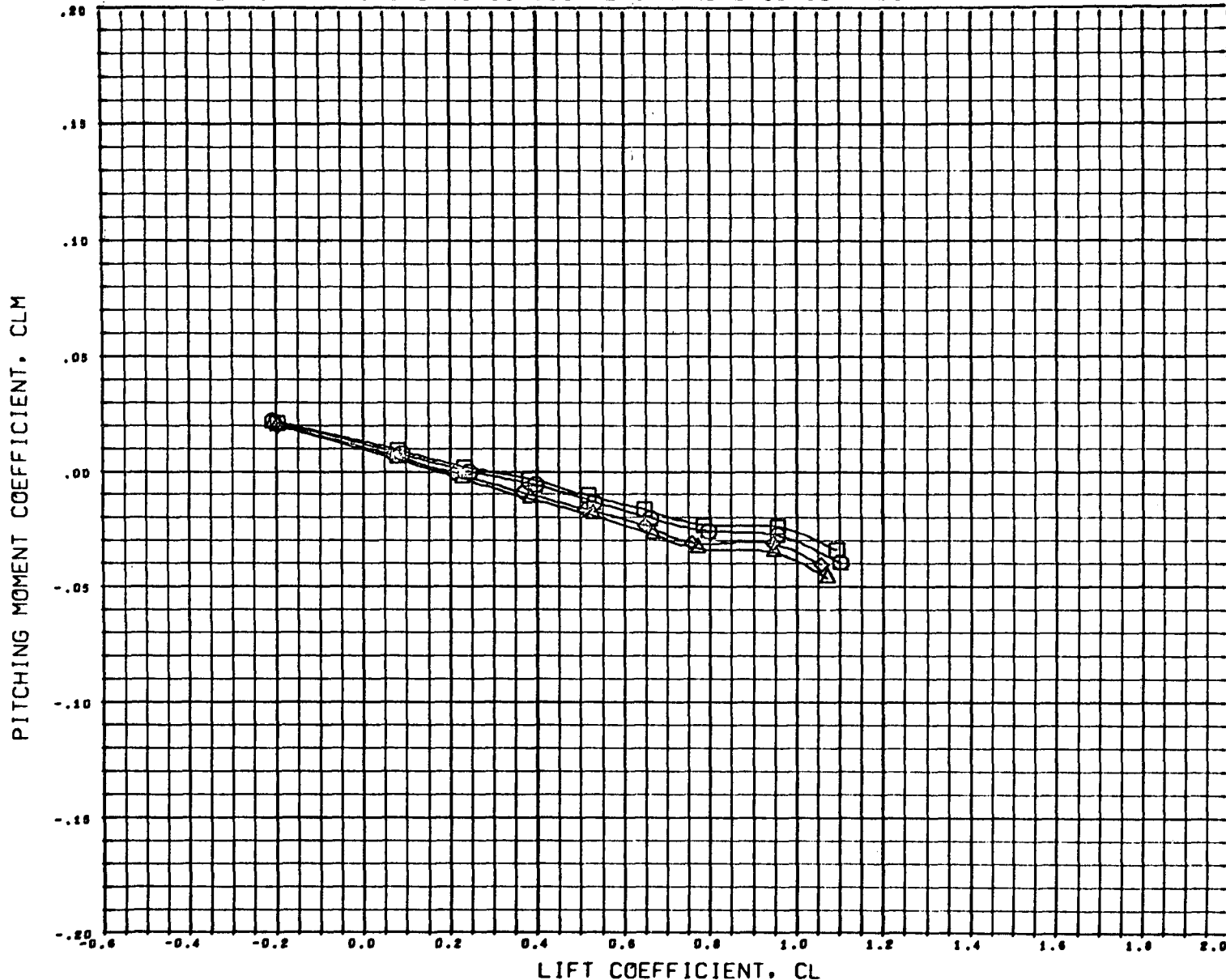


ANGLE OF ATTACK, ALPHA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN3000)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H1	0.734	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3146)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.734	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3142)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3202)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G1	0.000	0.000	0.000	0.000	XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.400

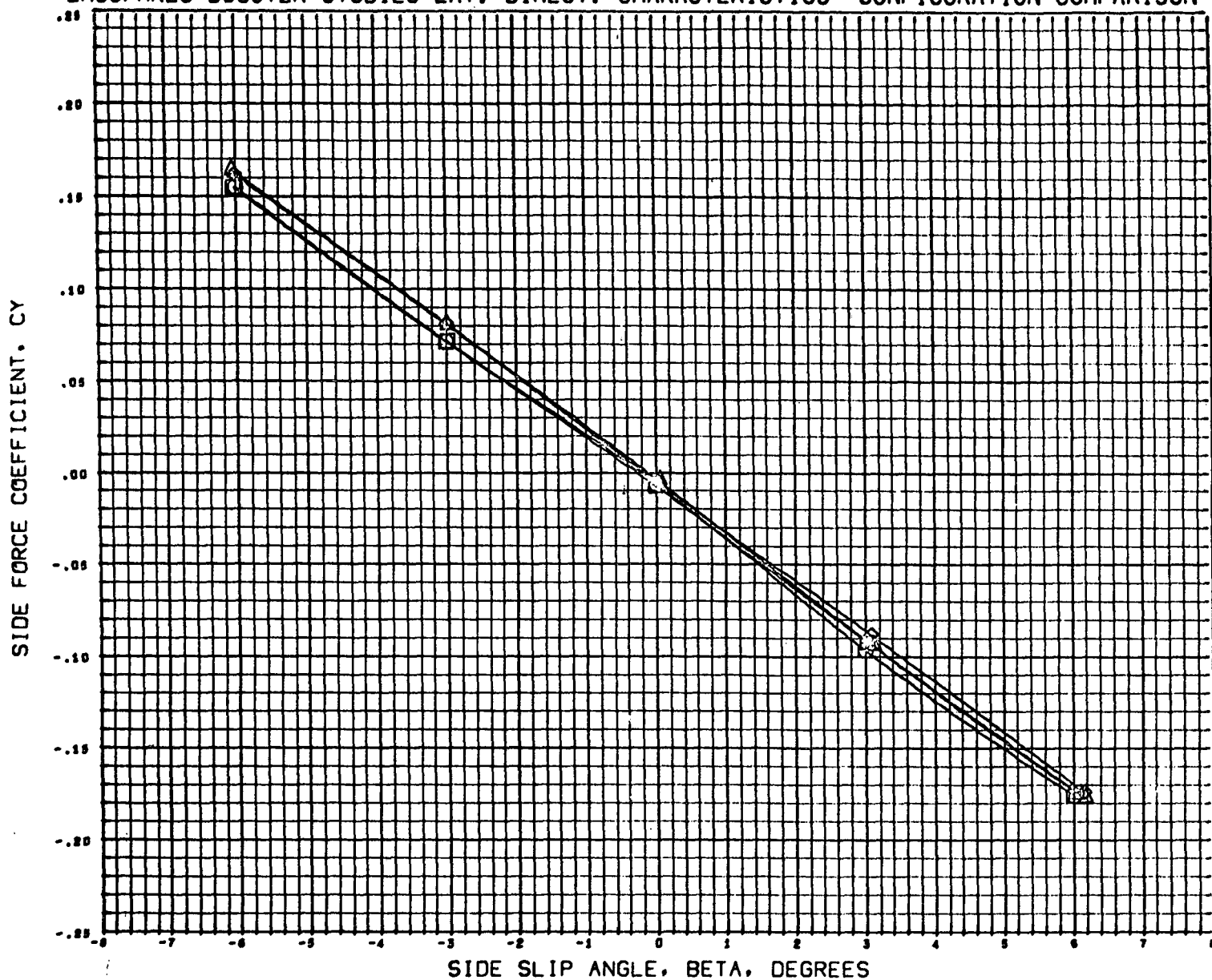
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN3008)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H1	0.734	0.000	0.000	0.000	SREF	1.3530 SQ.FT.
(RN3146)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.734	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3142)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.000	0.000	0.000	0.000	SREF	3.4530 FEET
(RN3202)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G1	0.000	0.000	0.000	0.000	XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.400

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON

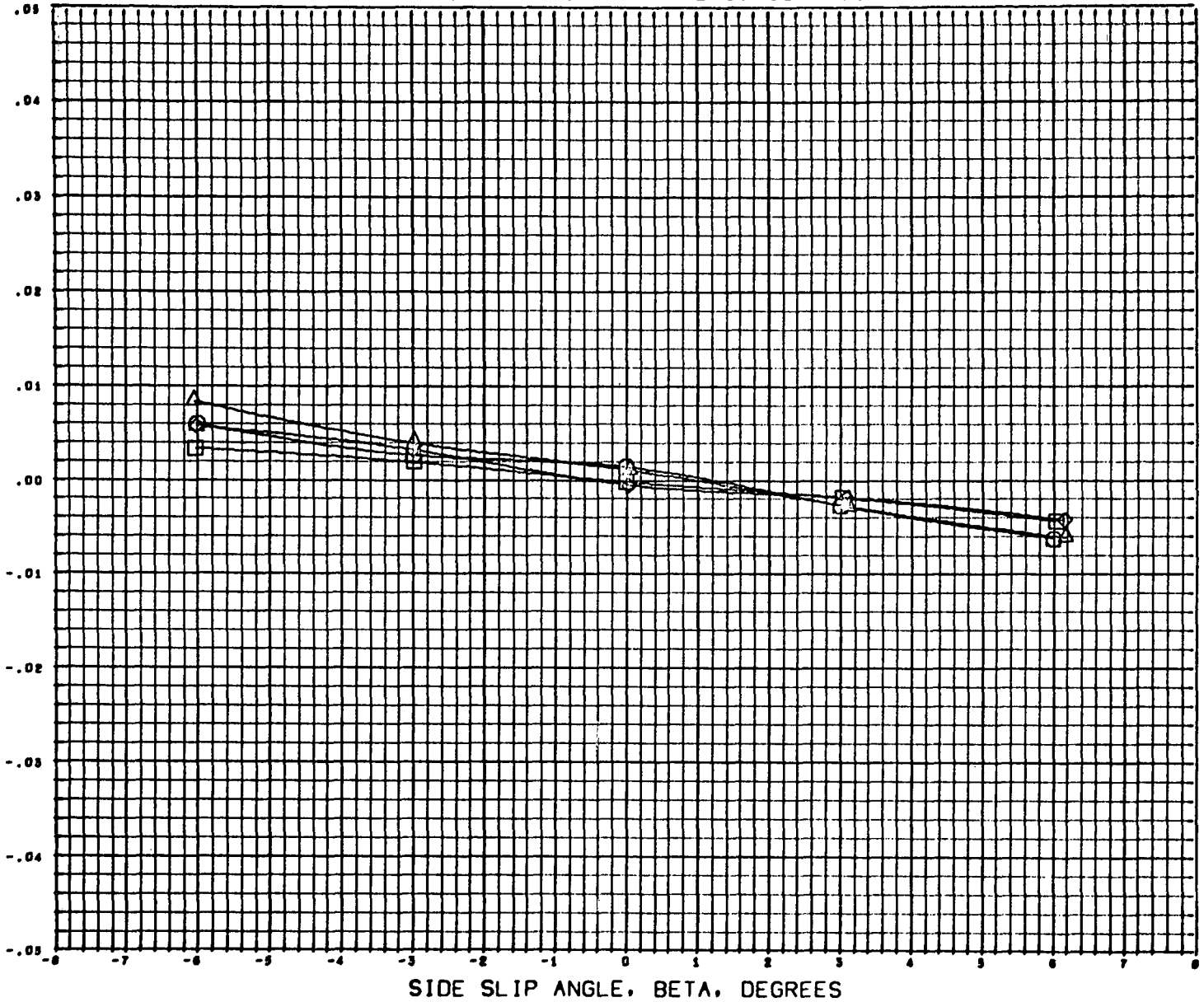


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION	
(ANS008)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H1	0.118	0.831	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3147)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.118	0.631	0.000	0.000	LREF	3.4530 FEET
(RN3143)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.104	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3203)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G1	0.041	0.000	0.000	0.000	XMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.400

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON

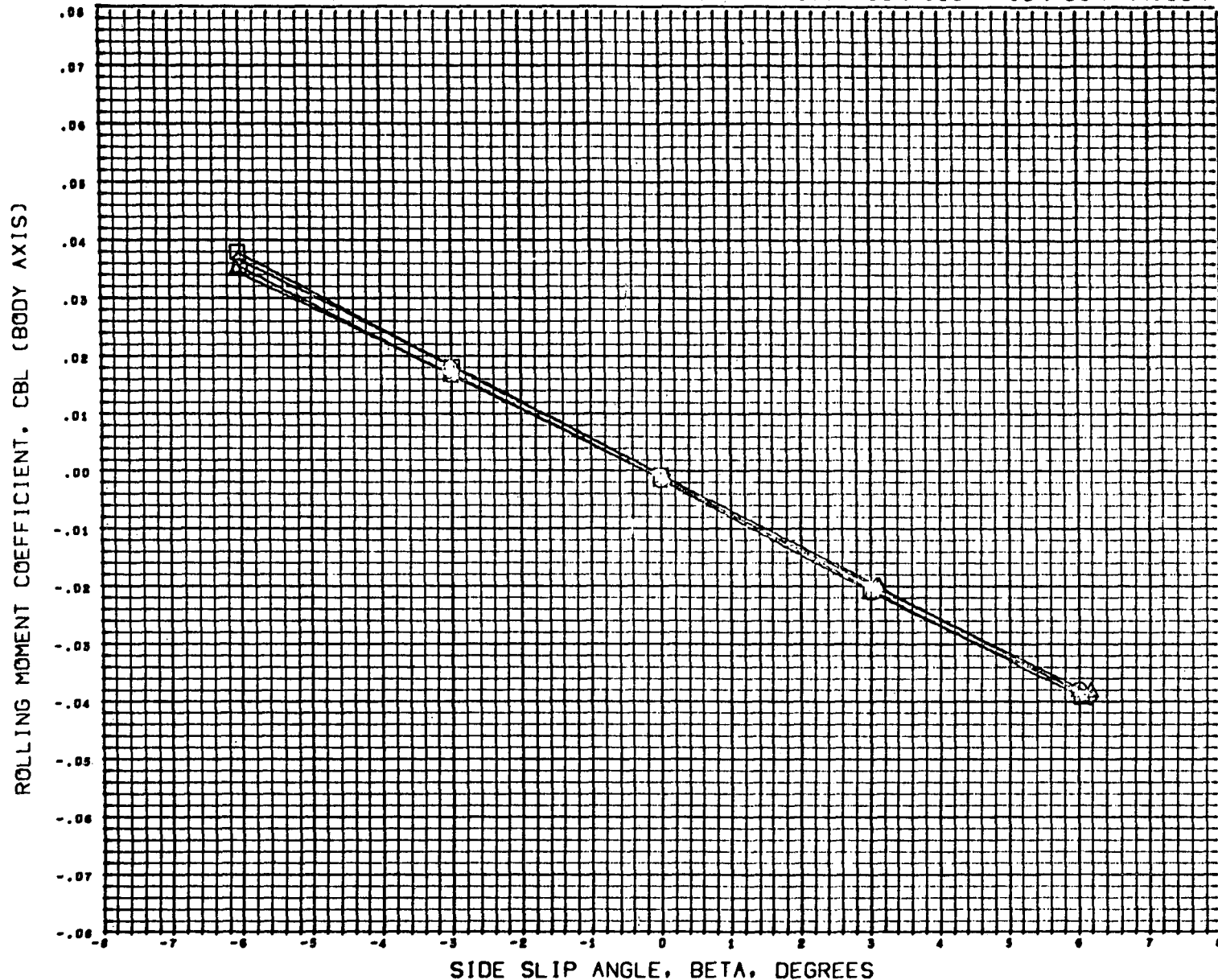
YAWING MOMENT COEFFICIENT, CYN (BODY AXIS)



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION	
(AN3008)	○	NSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H1	0.110	0.031	0.000	0.000	SREF	1.3550 SQ. FT.
(RN3147)	△	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.110	0.031	0.000	0.000	LREF	3.4530 FEET
(RN3143)	◇	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.104	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3203)	□	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G1	0.041	0.000	0.000	0.000	XNRP	2.5930 FEET
							YNRP	0.0000 FEET
							ZNRP	0.0147 FEET
							SCALE	0.0150 SCALE

MACH 0.400

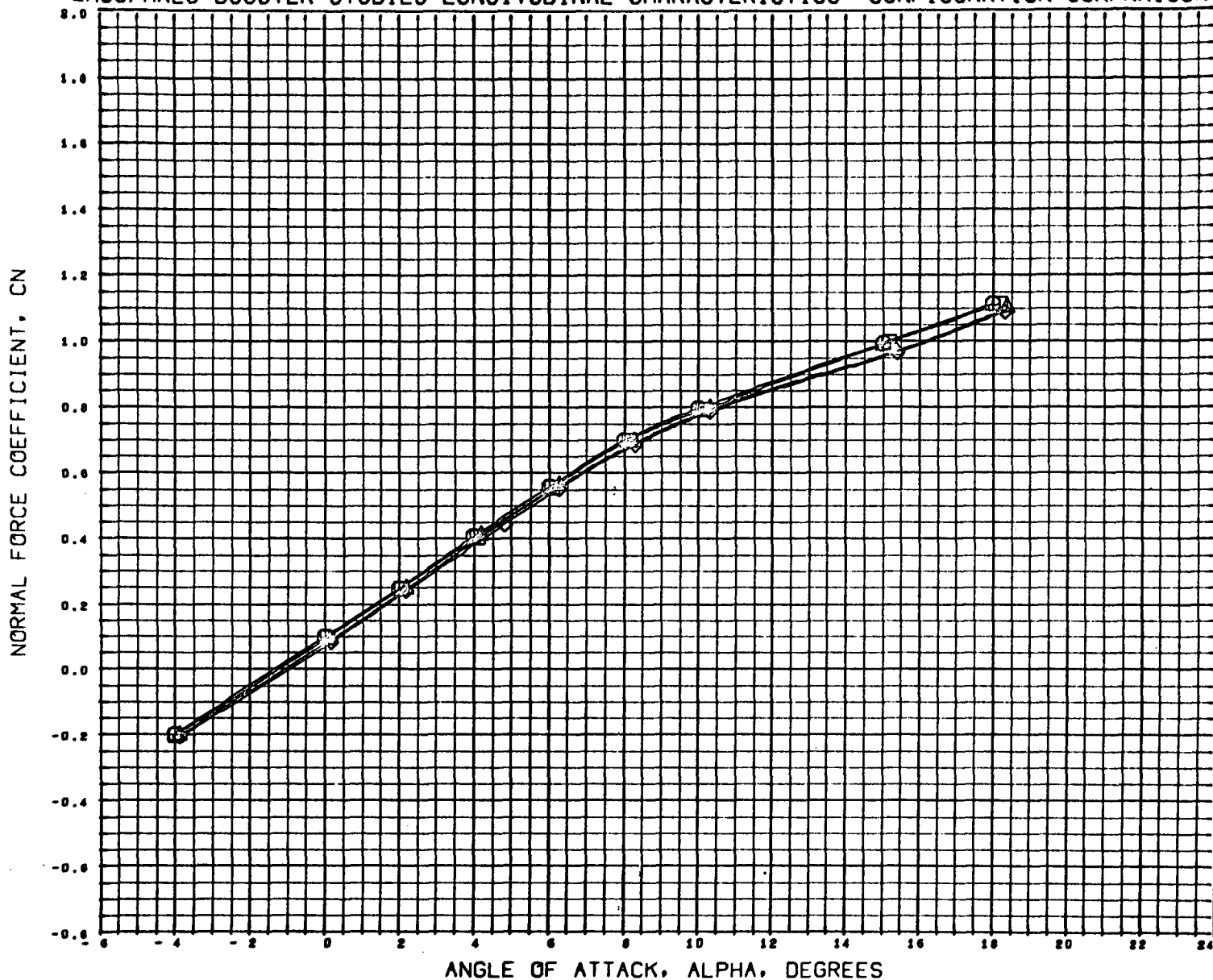
LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION	
(ANS008)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H1	0.118	0.631	0.000	0.000	SREF	1.3550 SQ.FT.
(RNS147)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.118	0.631	0.000	0.000	LREF	3.4530 FEET
(RNS143)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.104	0.000	0.000	0.000	BREF	3.4530 FEET
(RNS203)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G1	0.041	0.000	0.000	0.000	XHRP	2.5950 FEET
						YHRP	0.0000 FEET
						ZHRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.400

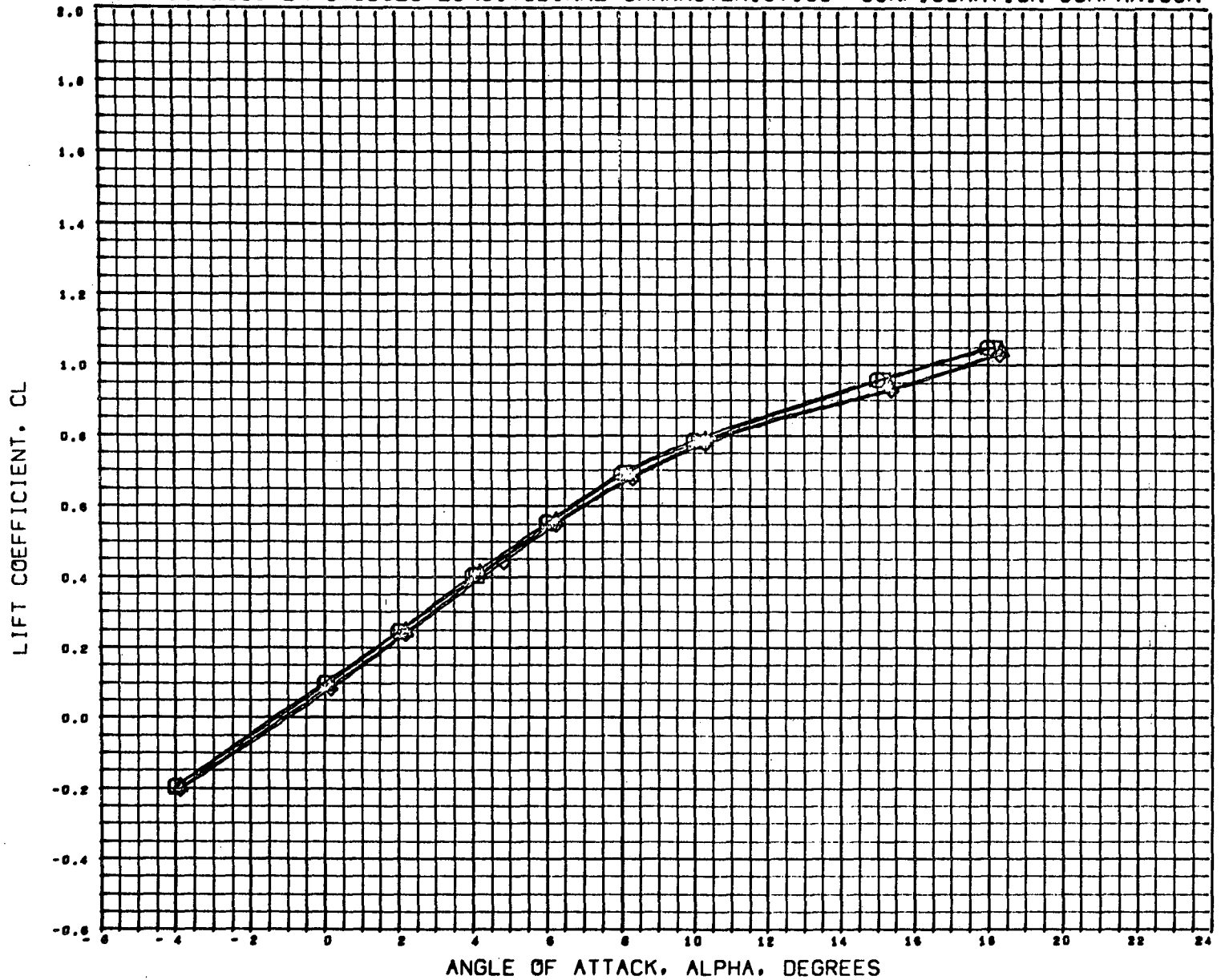
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300R)	MSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H3	0.459	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(RN3154)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.459	0.000	0.000	0.000	LREF	3.4330 FEET
(RN3150)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.000	0.000	0.000	0.000	BREF	3.4330 FEET
(RN3206)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G1	0.000	0.000	0.000	0.000	XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.900

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

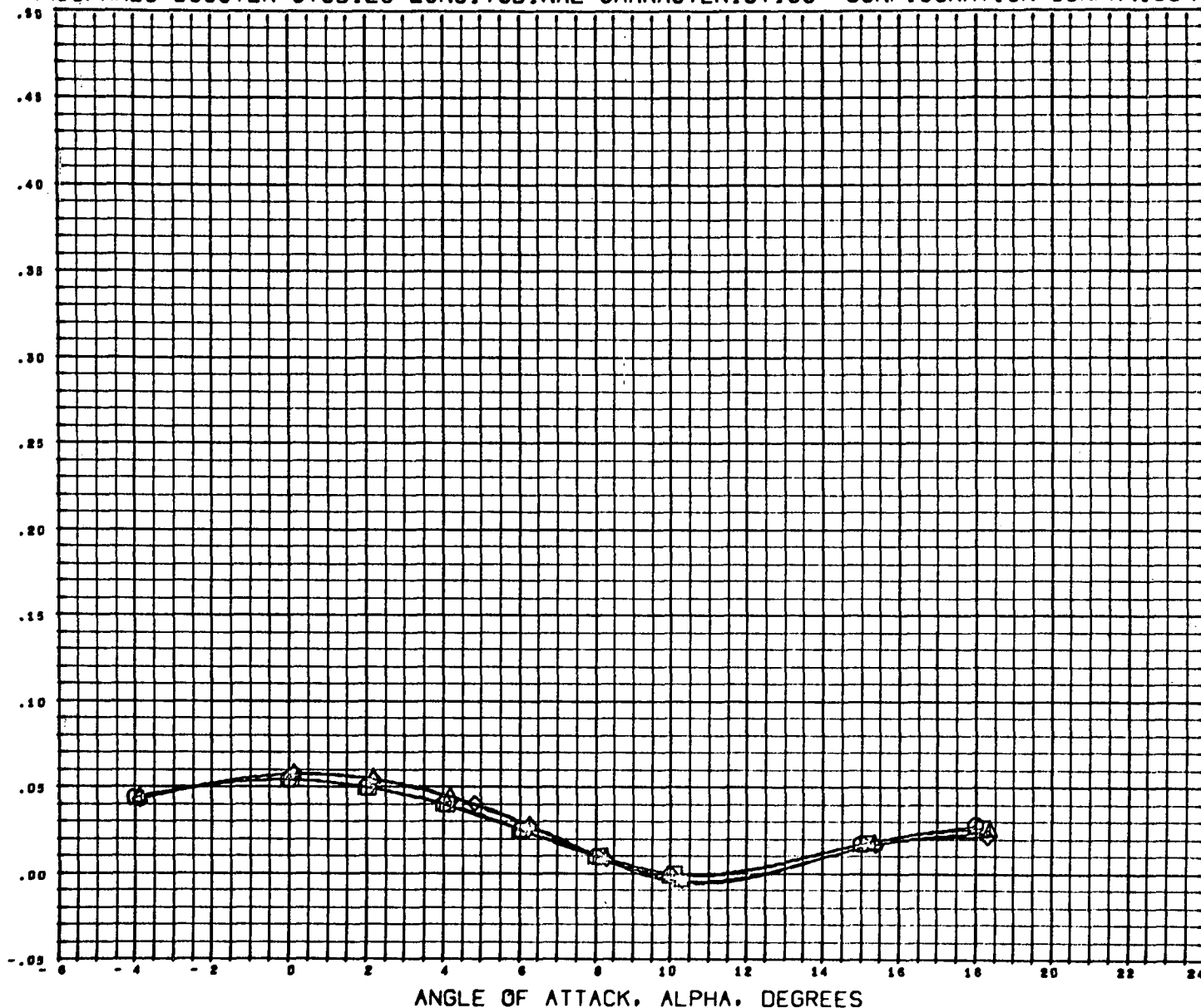


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(RNS00R)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H1	0.459	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RNS154)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.459	0.000	0.000	0.000	LREF	3.4530 FEET
(RNS150)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RNS206)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G1	0.000	0.000	0.000	0.000	XMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0190 SCALE

MACH 0.500

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

AXIAL FORCE COEFFICIENT, CA



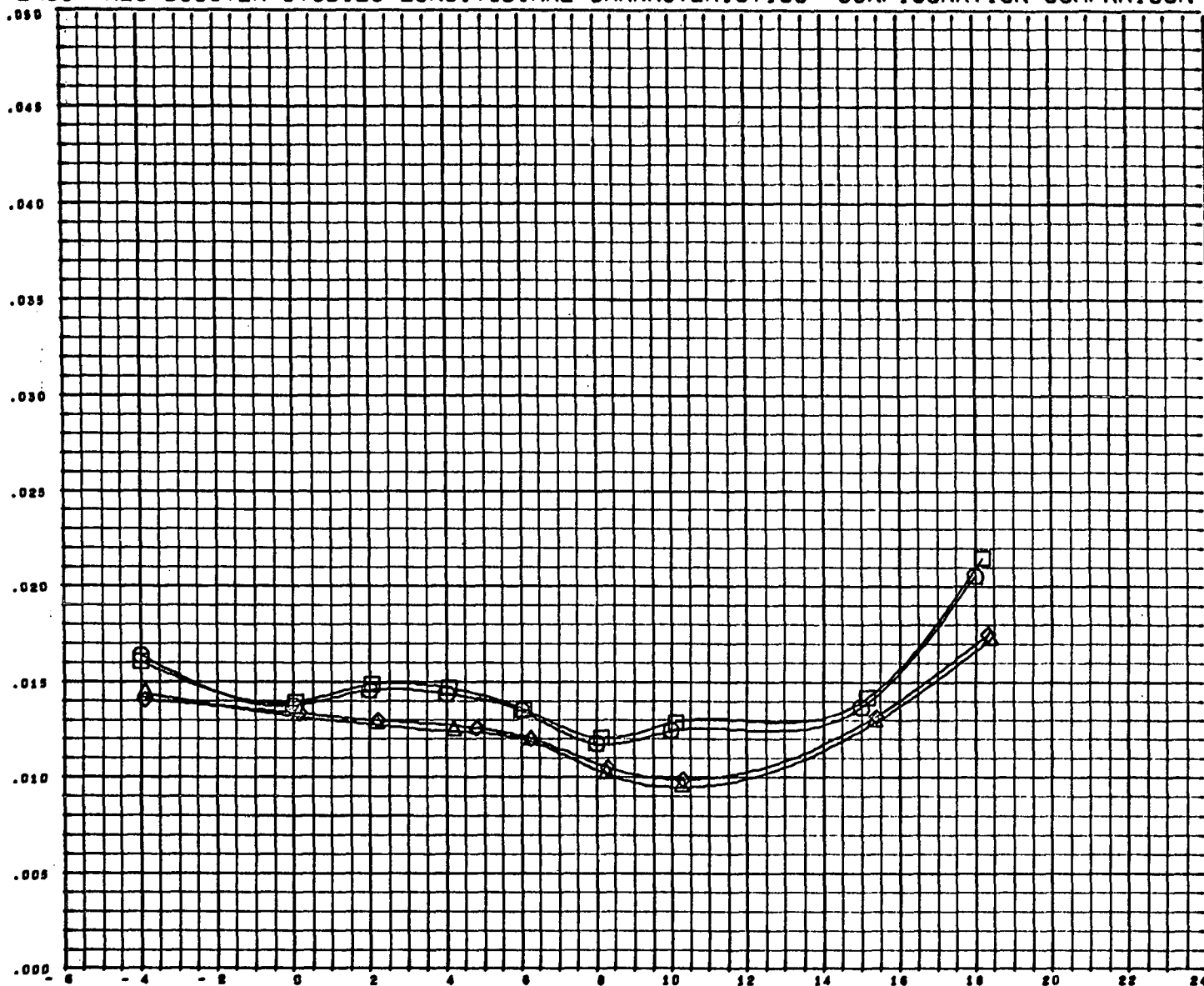
ANGLE OF ATTACK, ALPHA, DEGREES

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300R)	○	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H1	0.459	0.000	0.000	0.000	SREF	1.3550 80.FT.
(RN3154)	△	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.459	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3150)	◇	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3206)	□	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G1	0.000	0.000	0.000	0.000	XMRP	2.9950 FEET
							YMRP	0.0000 FEET
							ZMRP	0.0187 FEET
							SCALE	0.0150 SCALE

MACH 0.500

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON

BASE AXIAL FORCE COEFFICIENT, C_{AB}

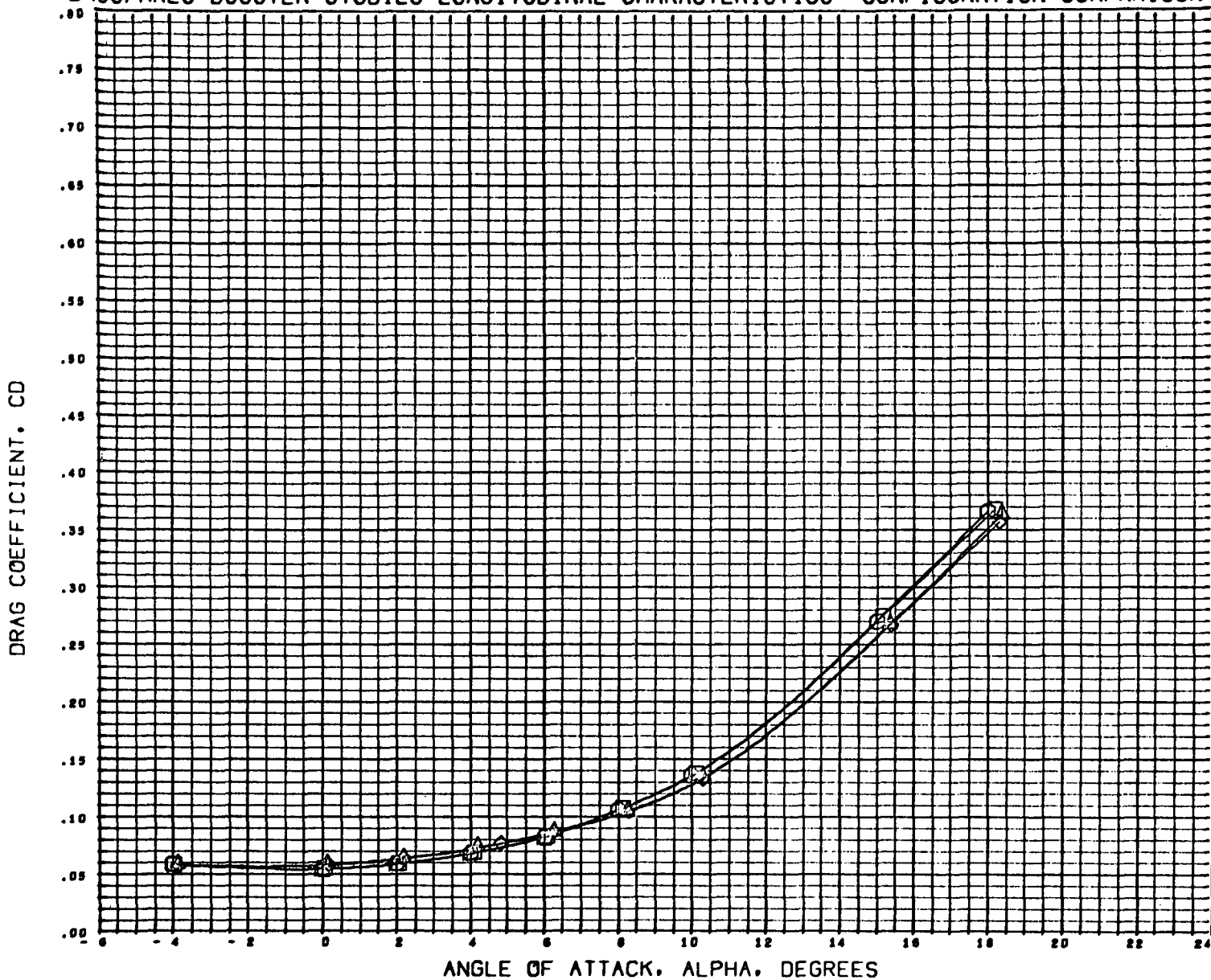


ANGLE OF ATTACK, ALPHA, DEGREES

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300R)	○	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H1	0.459	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3154)	△	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.459	0.000	0.000	0.000	LREF	3.4330 FEET
(RN3150)	◇	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.000	0.000	0.000	0.000	BREF	3.4330 FEET
(RN3206)	□	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G1	0.000	0.000	0.000	0.000	XMRF	2.5950 FEET
							YMRF	0.0000 FEET
							ZMRF	0.0187 FEET
							SCALE	0.0150 SCALE

MACH 0.500

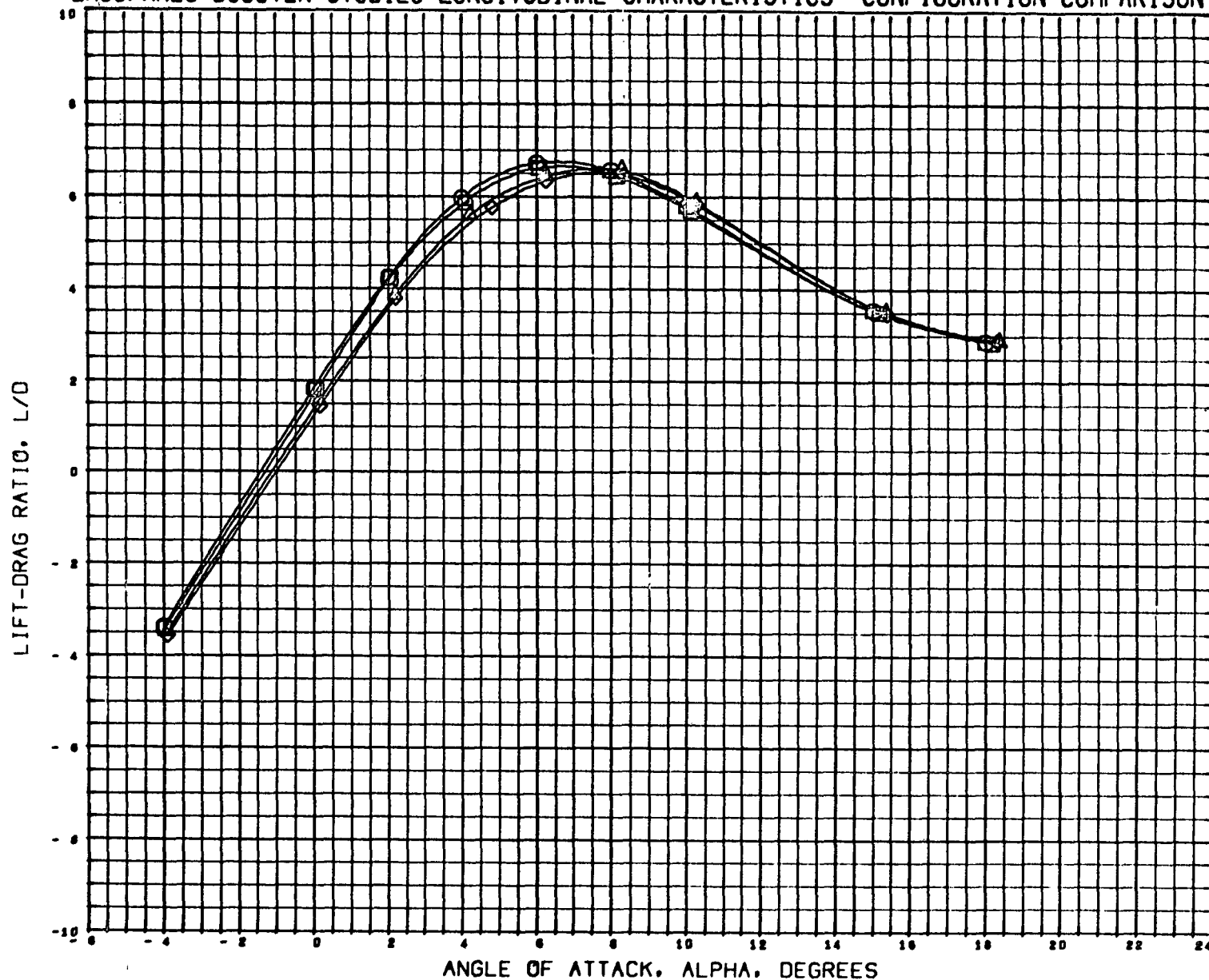
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300R)	○	MSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H1	0.459	0.000	0.000	0.000	SREF	1.3550 30.FT.
(RN3154)	△	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.459	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3150)	◇	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3206)	□	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G1	0.000	0.000	0.000	0.000	XMRP	2.5950 FEET
							YMRP	0.0000 FEET
							ZMRP	0.0187 FEET
							SCALE	0.0150 SCALE

MACH 0.900

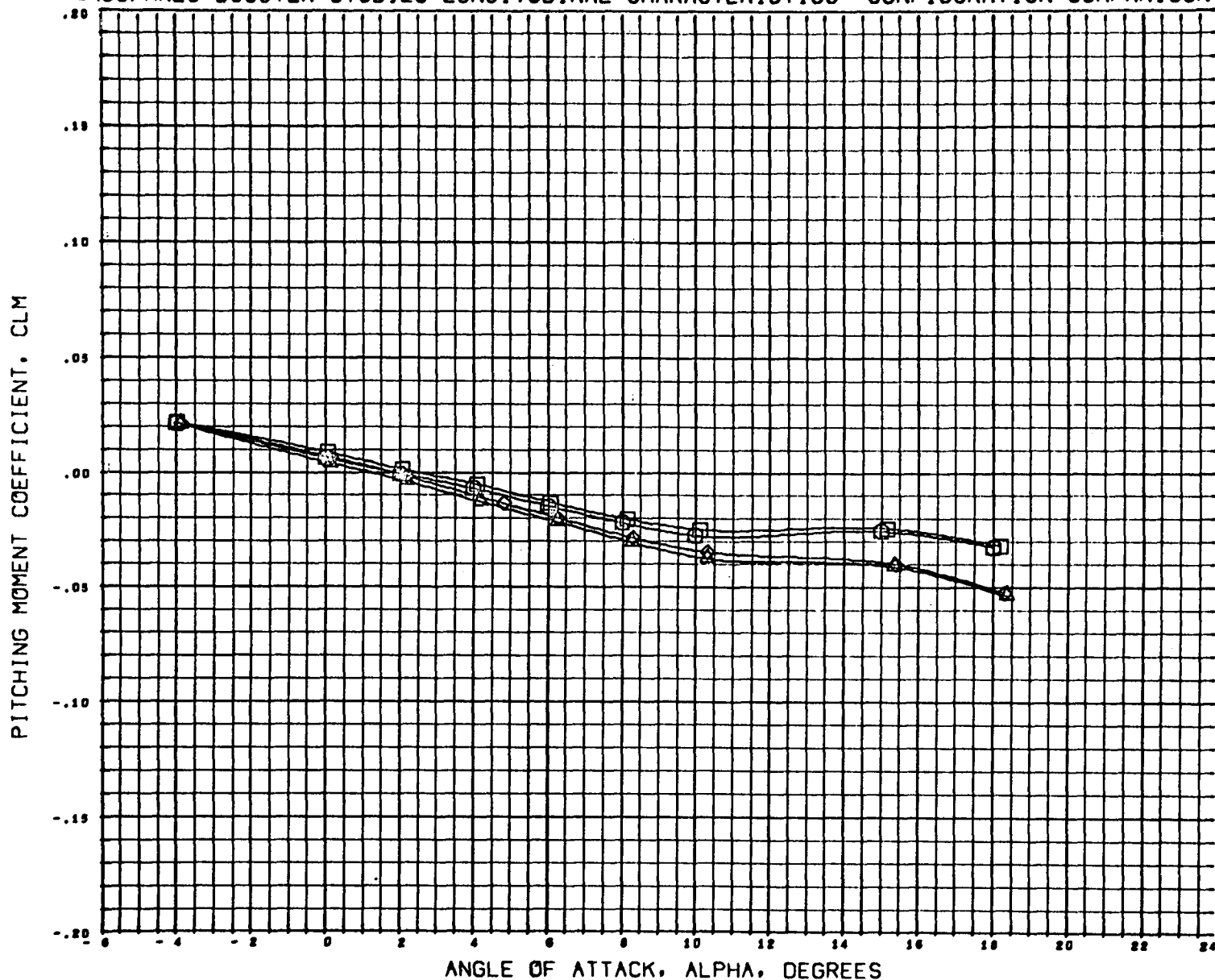
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300R)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H1	0.459	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3154)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.459	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3150)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.000	0.000	0.000	0.000	SREF	3.4530 FEET
(RN3206)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G1	0.000	0.000	0.000	0.000	XMRP	2.5930 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.900

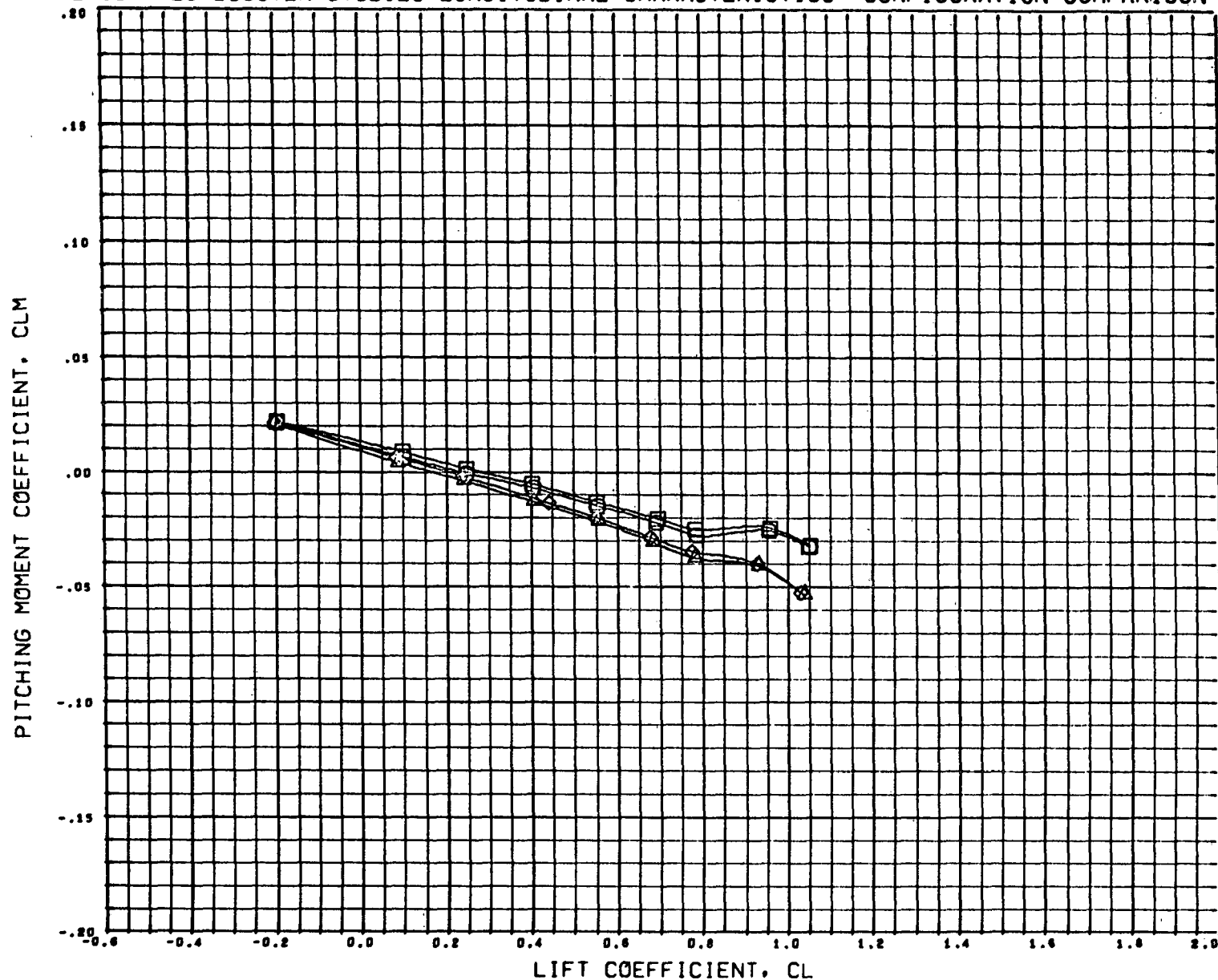
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300R)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H1	0.459	0.000	0.000	0.000	SREF	1.3550 88.FT.
(RN3154)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.459	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3150)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3206)	MSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G1	0.000	0.000	0.000	0.000	XHRP	2.5950 FEET
						YHRP	0.0000 FEET
						ZHRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.300

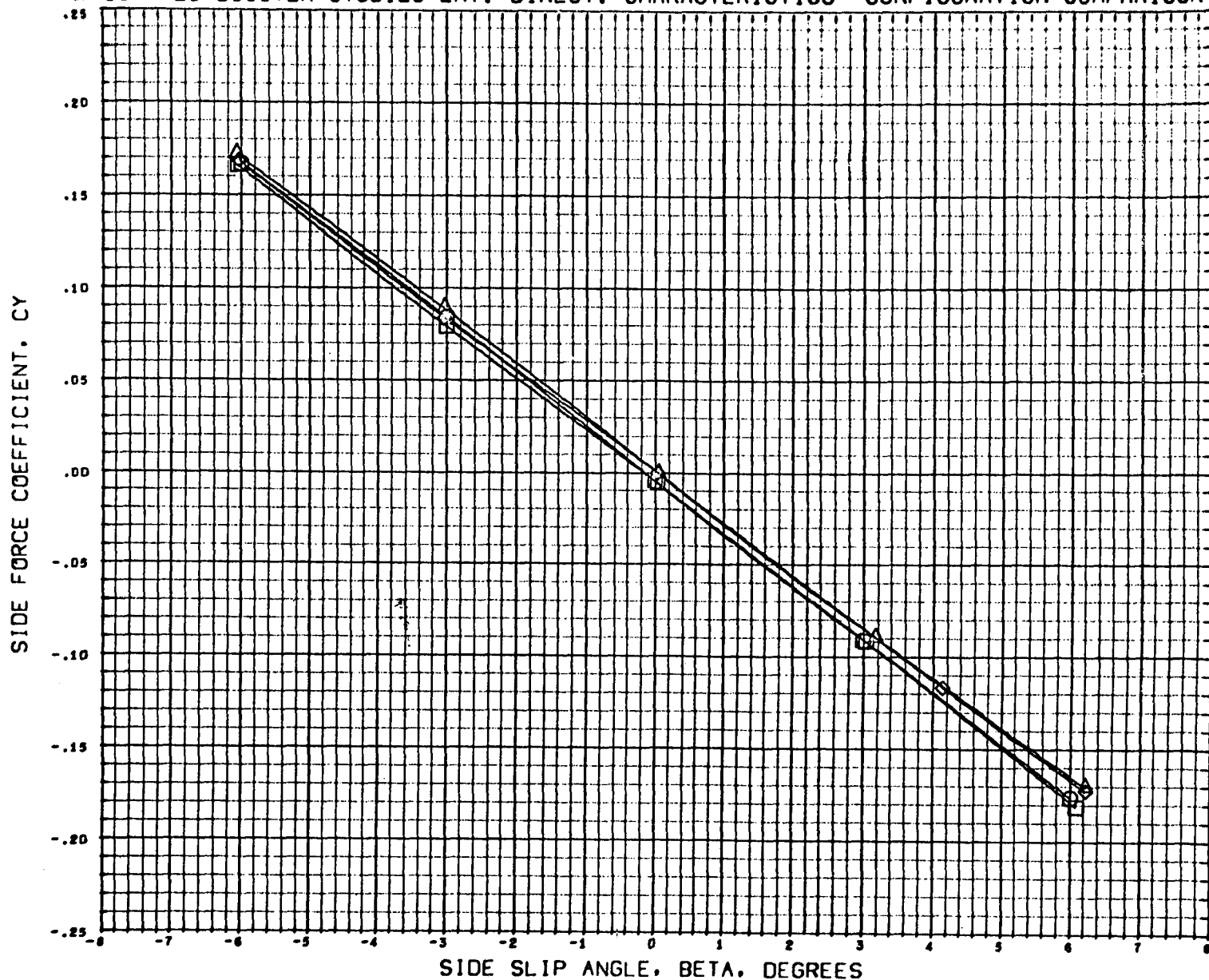
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300R)	MSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H1	0.459	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(RN3154)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.459	0.000	0.000	0.000	LREF	3.4530 FEET
(RN3150)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3206)	MSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G1	0.000	0.000	0.000	0.000	XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.500

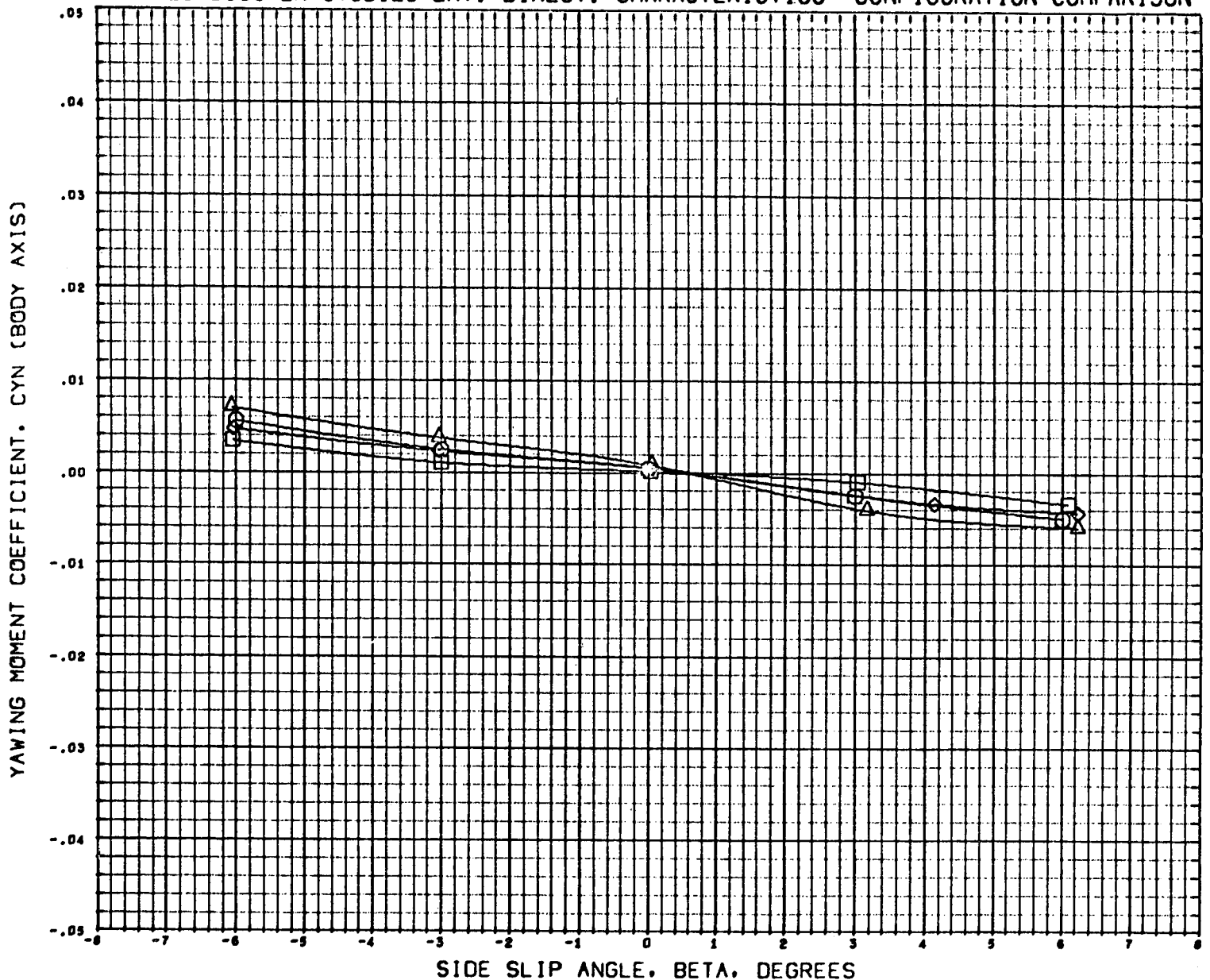
LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION	
(AN300T)	NSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H1	0.160	0.468	0.000	0.000	SREF	1.3550 80.FT.
(RN3155)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.160	0.468	0.000	0.000	LREF	3.4530 FEET
(RN3151)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.176	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3207)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G1	0.068	0.000	0.000	0.000	XMRP	2.3950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.500

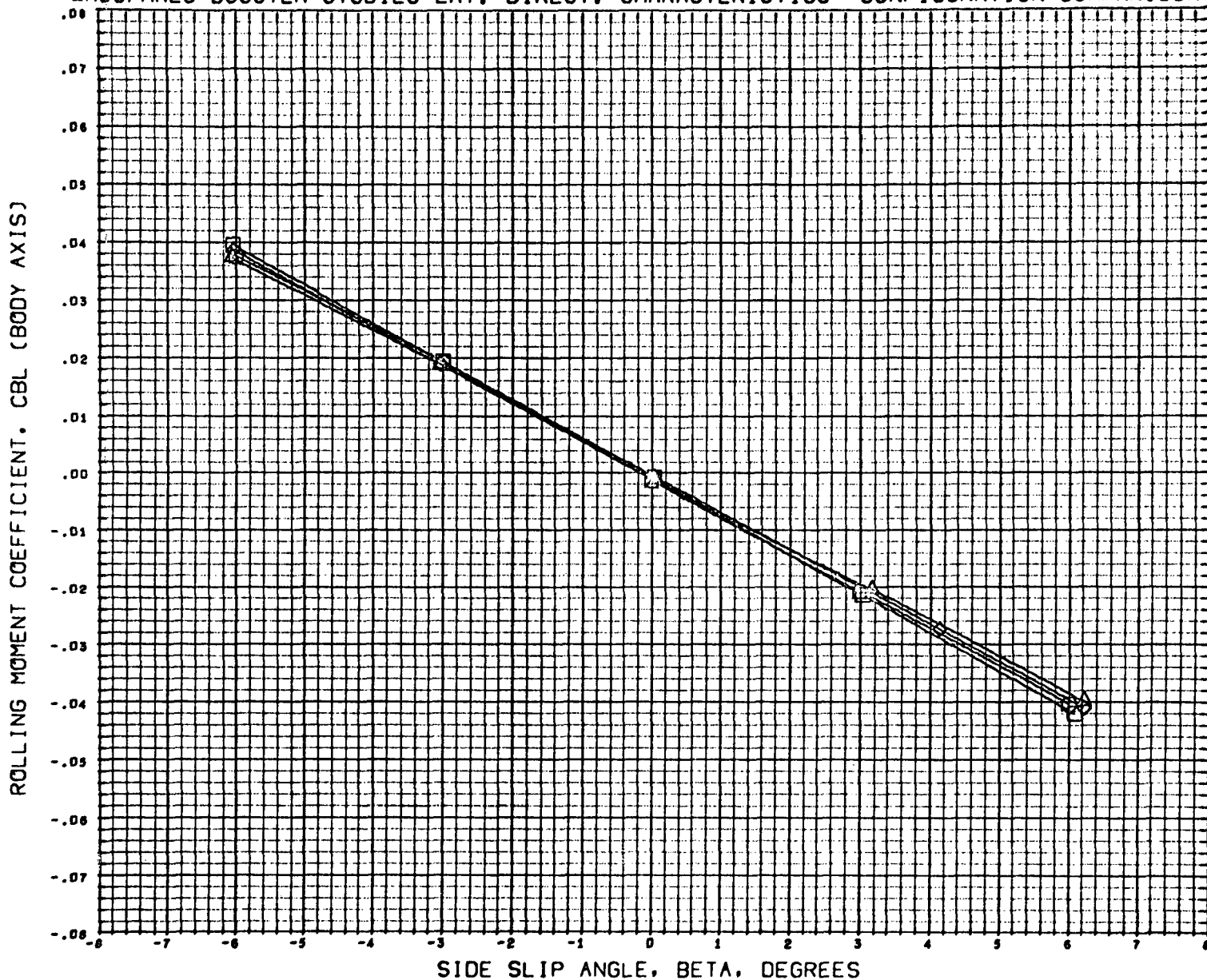
LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION	
(AN300T)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H1	0.160	0.468	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3155)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.160	0.468	0.000	0.000	LREF	3.4530 FEET
(RN3151)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.176	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3207)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G1	0.068	0.000	0.000	0.000	XMHP	2.5950 FEET
						YMHP	0.0000 FEET
						ZMHP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.500

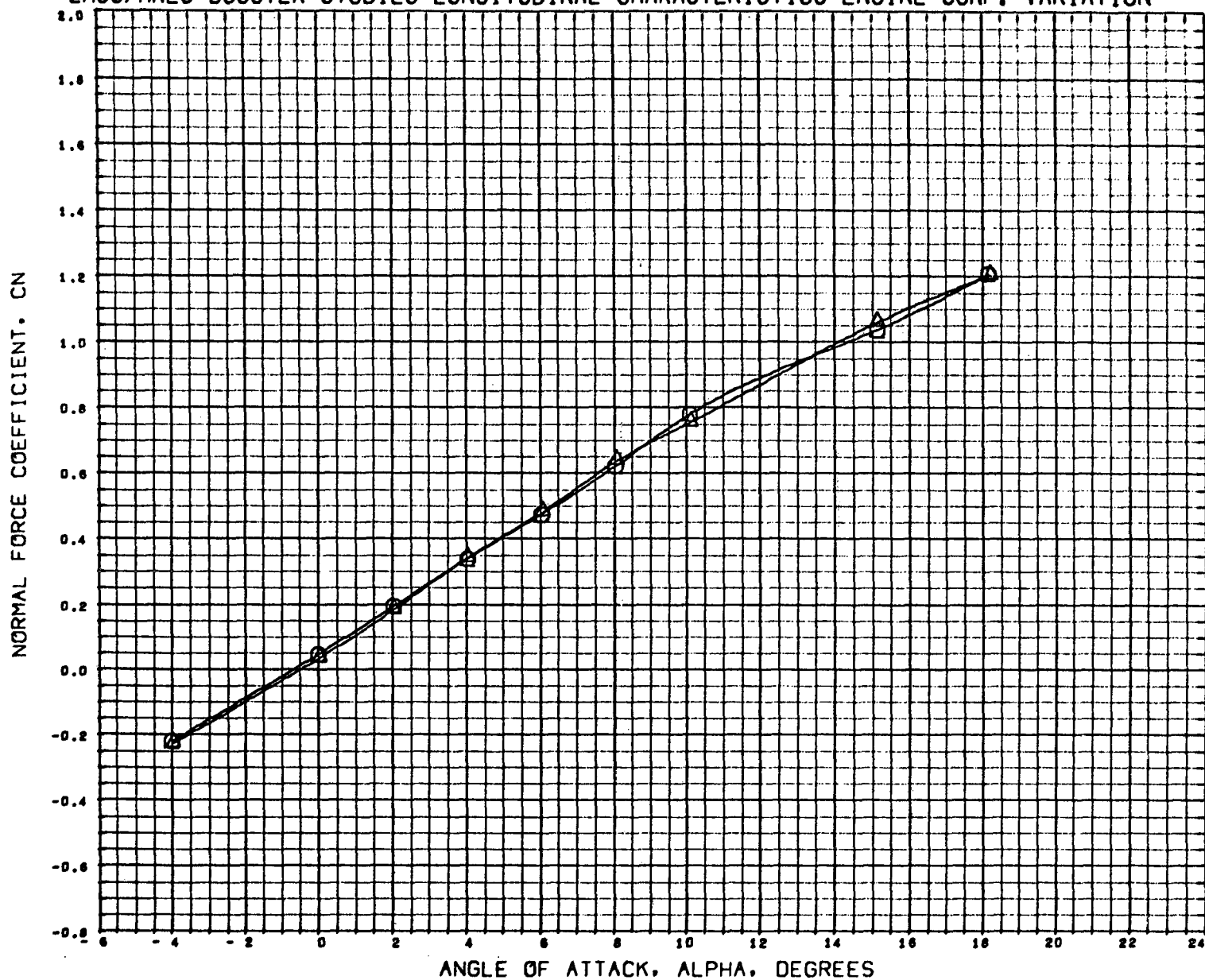
LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS- CONFIGURATION COMPARISON



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION	
(AN30GT)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H1	0.160	0.468	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3155)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.160	0.468	0.000	0.000	LREF	3.4530 FEET
(RN3151)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1E1	0.176	0.000	0.000	0.000	BREF	3.4530 FEET
(RN3207)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G1	0.068	0.000	0.000	0.000	XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.500

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



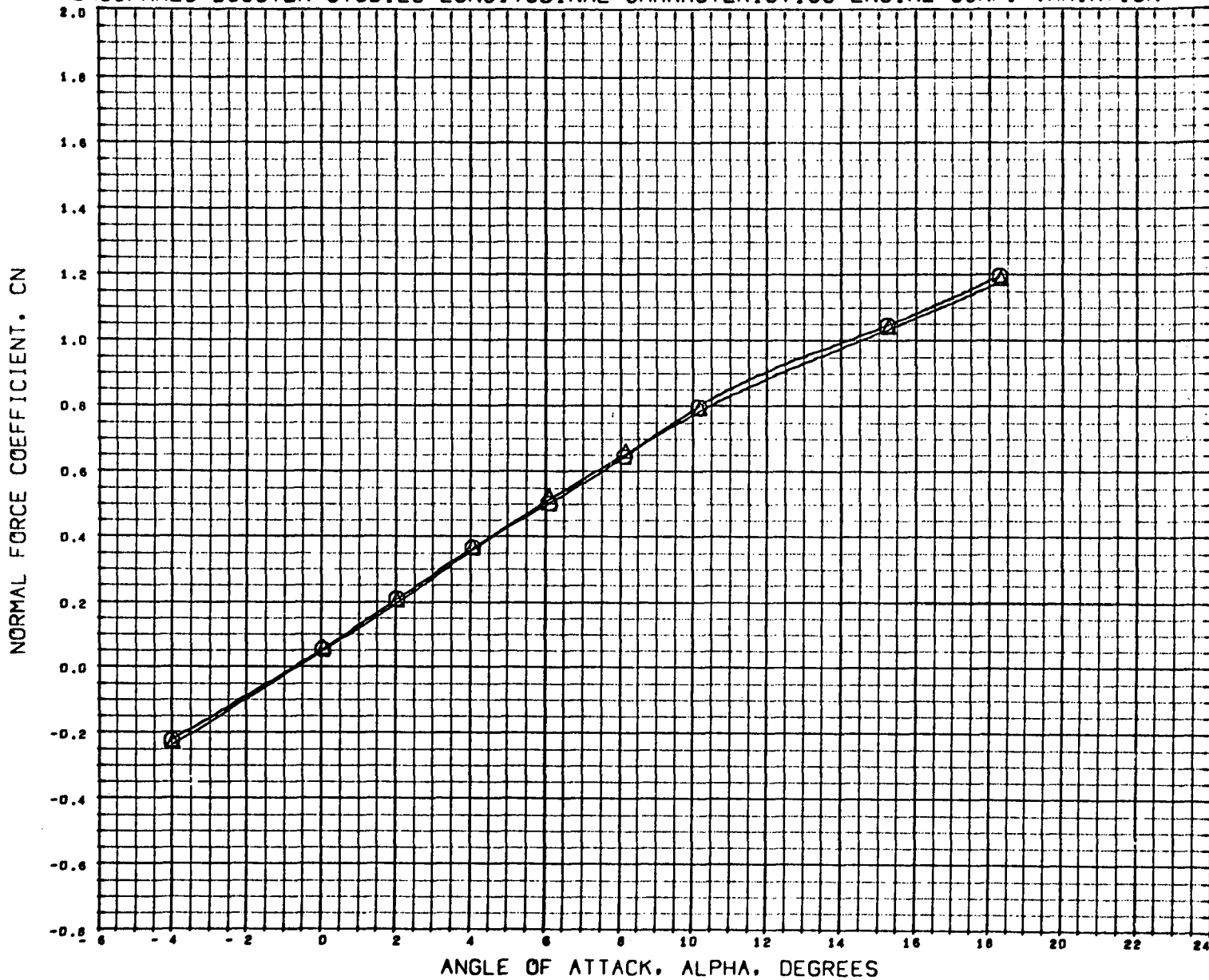
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(RN3200)	NSRDC-3210,HSFC/LMSC BOOSTER B1C2F2W1V162
(RN3182)	NSRDC-3210,HSFC/LMSC BOOSTER B1C2F2W1V164
(DN3001)	DATA NOT AVAILABLE FOR ALL CONDITIONS

ELEVTR	AILRON	RUDDER	CANARD
0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000

REFERENCE INFORMATION	
SREF	1.3550 80.FT.
LREF	3.4530 FEET
BREF	3.4530 FEET
XMRP	2.5950 FEET
YMRP	0.0000 FEET
ZMRP	0.0187 FEET
SCALE	0.0150 SCALE

MACH 0.374

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



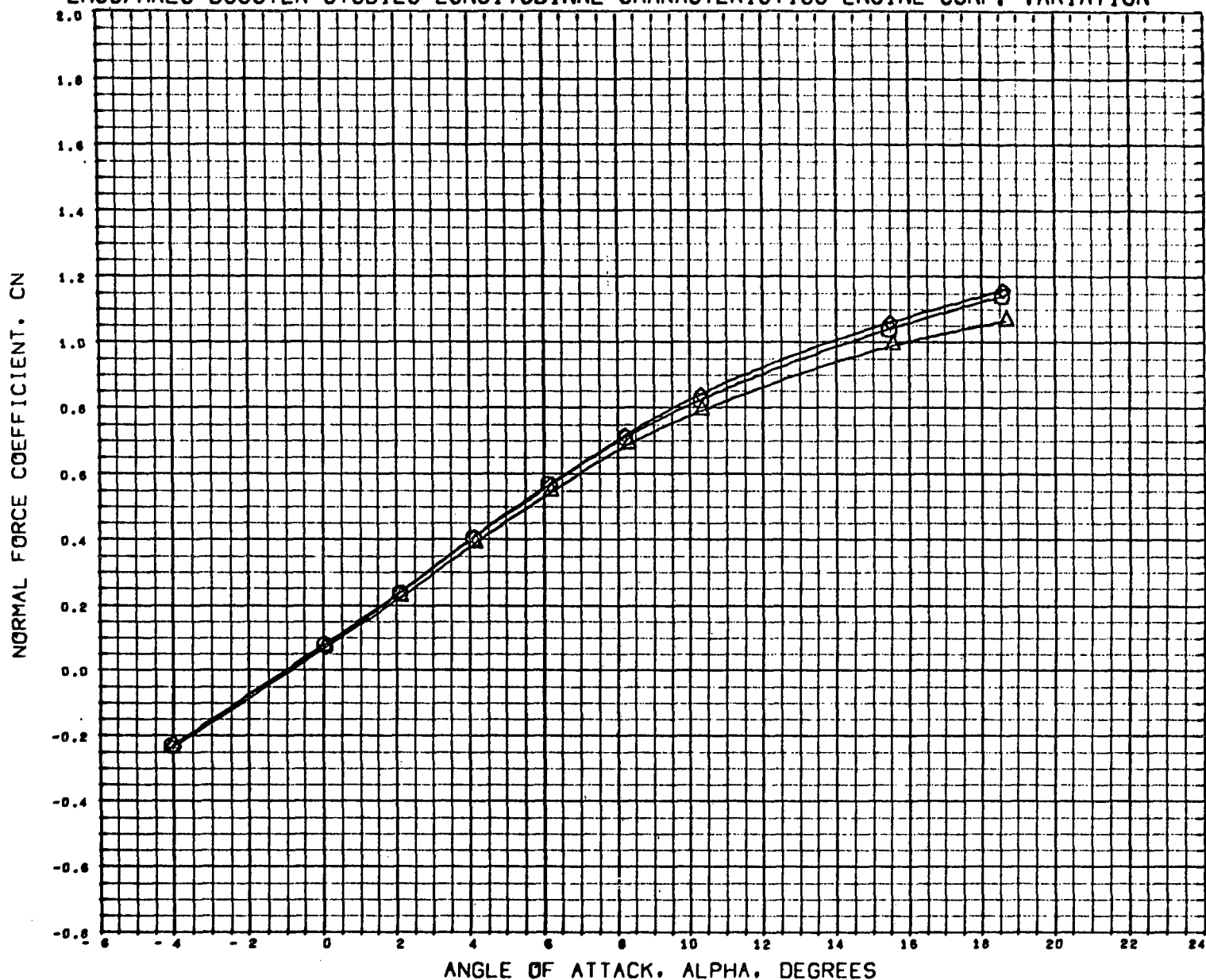
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(RN3200)	NSROC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G2
(RN3102)	NSROC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G4
(DN3001)	DATA NOT AVAILABLE FOR ALL CONDITIONS

ELEVTR	AILRON	RUDDER	CANARD
0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000

REFERENCE INFORMATION		
SREF	1.3550	80. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
YMRP	2.9950	FEET
YMRP	0.0000	FEET
ZMRP	0.0187	FEET
SCALE	0.0150	SCALE

MACH 0.505

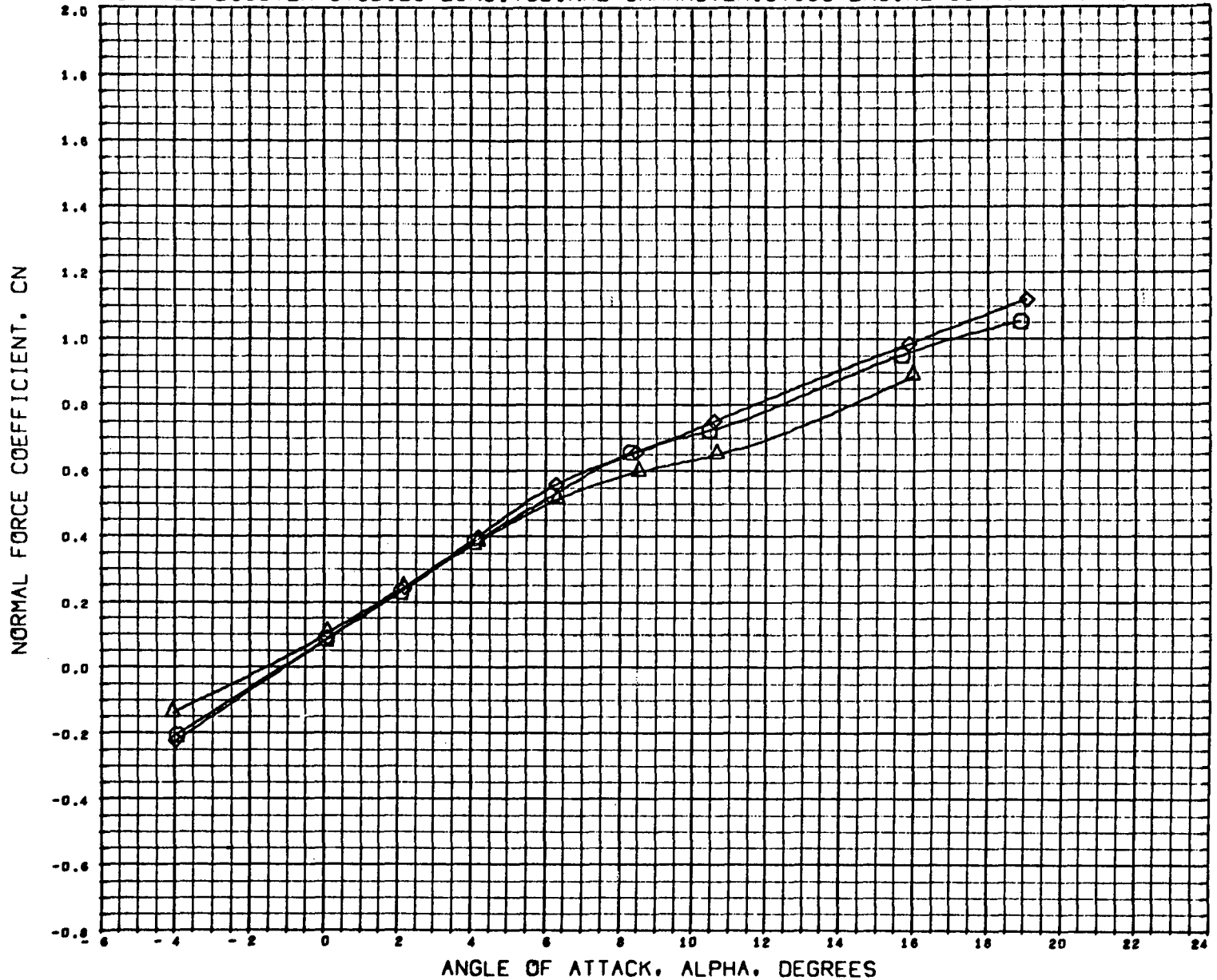
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3200)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3182)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF	3.4530 FEET
(DN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.5930 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.701

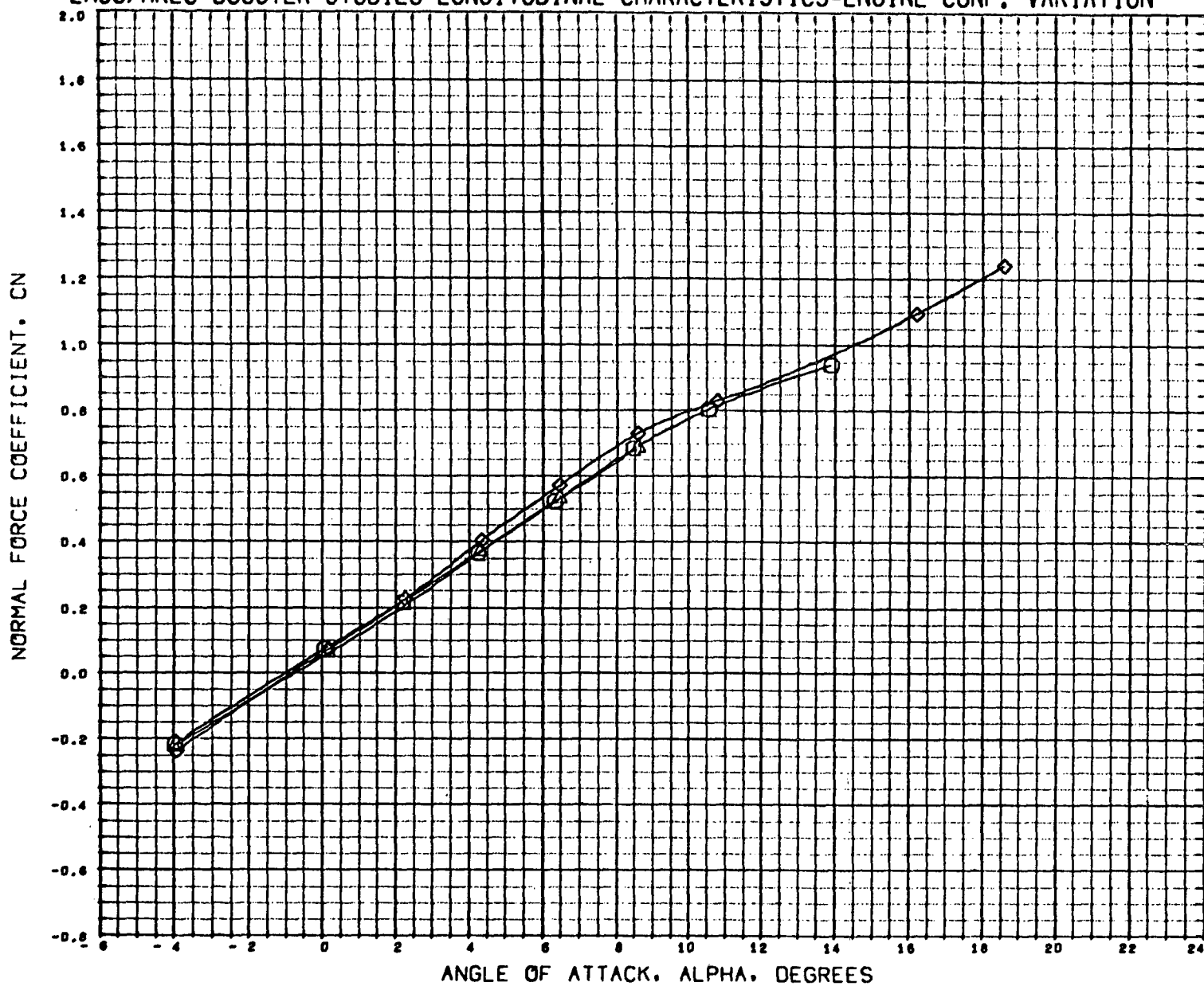
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3200)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3102)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF	3.4530 FEET
(DN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.901

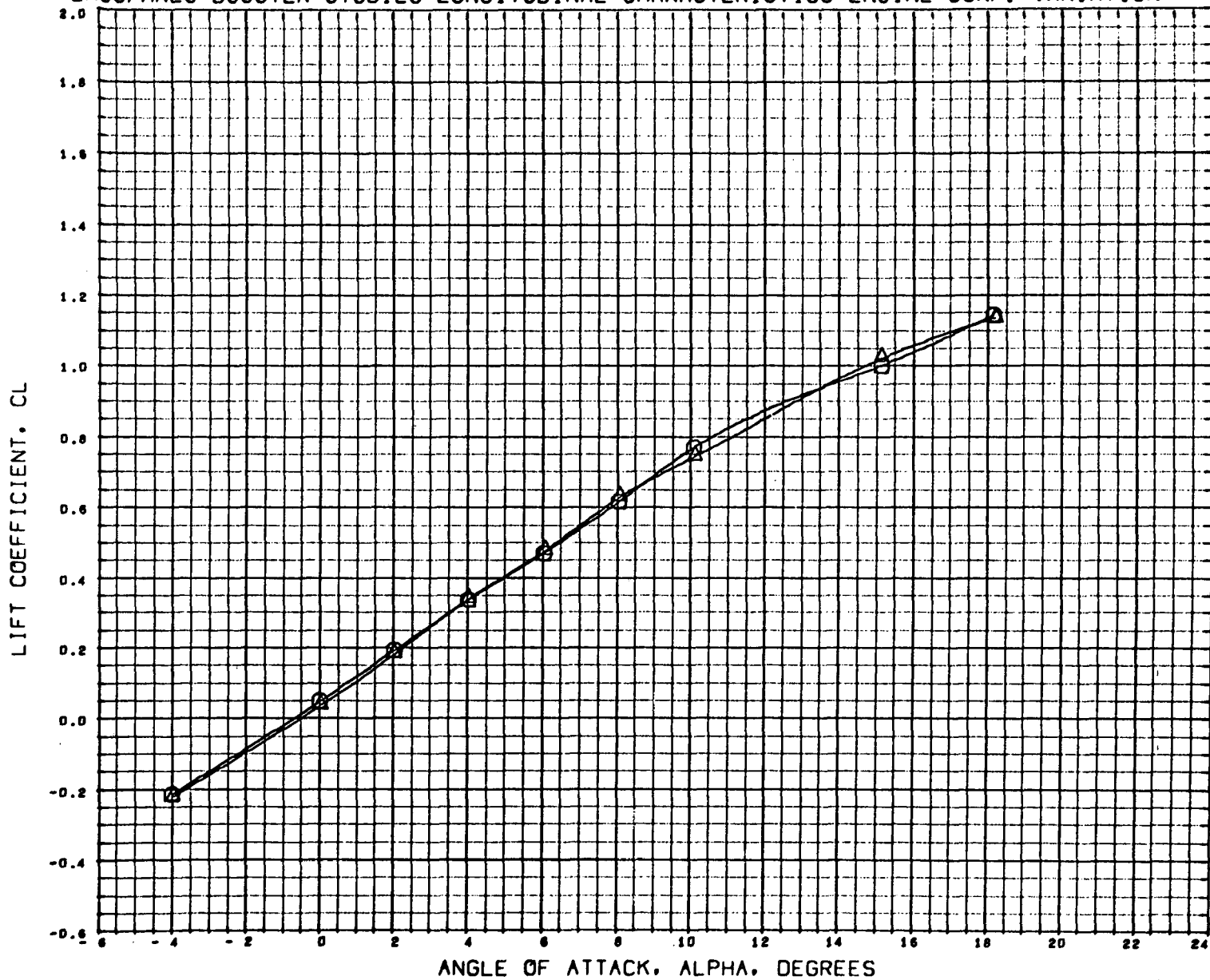
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(R3200)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V162	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(R3182)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V164	0.000	0.000	0.000	0.000	LREF	3.4530 FEET
(R3001)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
							XMRP	2.5950 FEET
							YNRP	0.0000 FEET
							ZMRP	0.0187 FEET
							SCALE	0.0150 SCALE

MACH 1.004

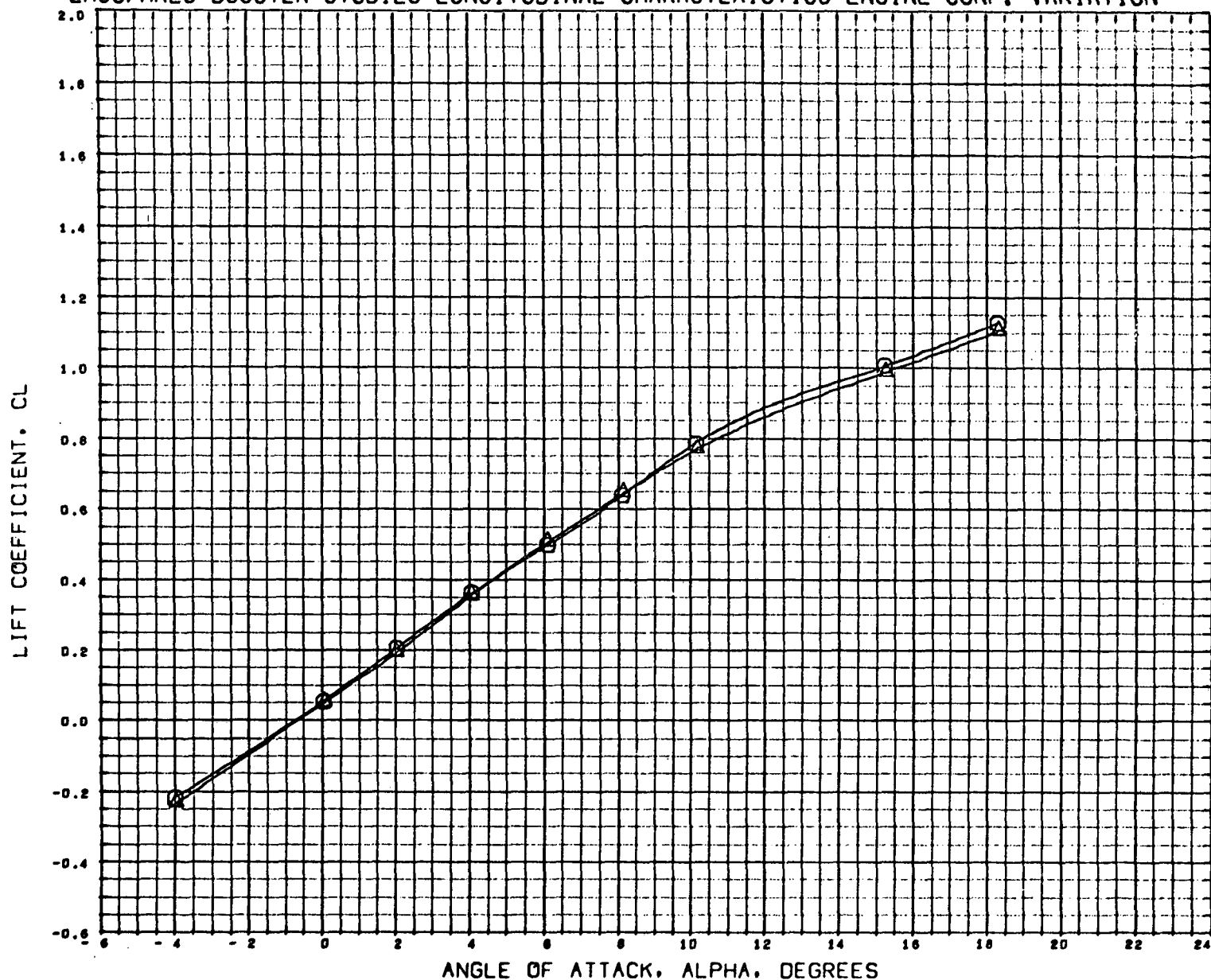
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	ATLRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3200)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF	1.3550 80.FT.
(RN3182)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF	3.4530 FEET
(DN3001)	DATA NOT AVAILABLE FOR ALL CONDITIONS	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.3950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.374

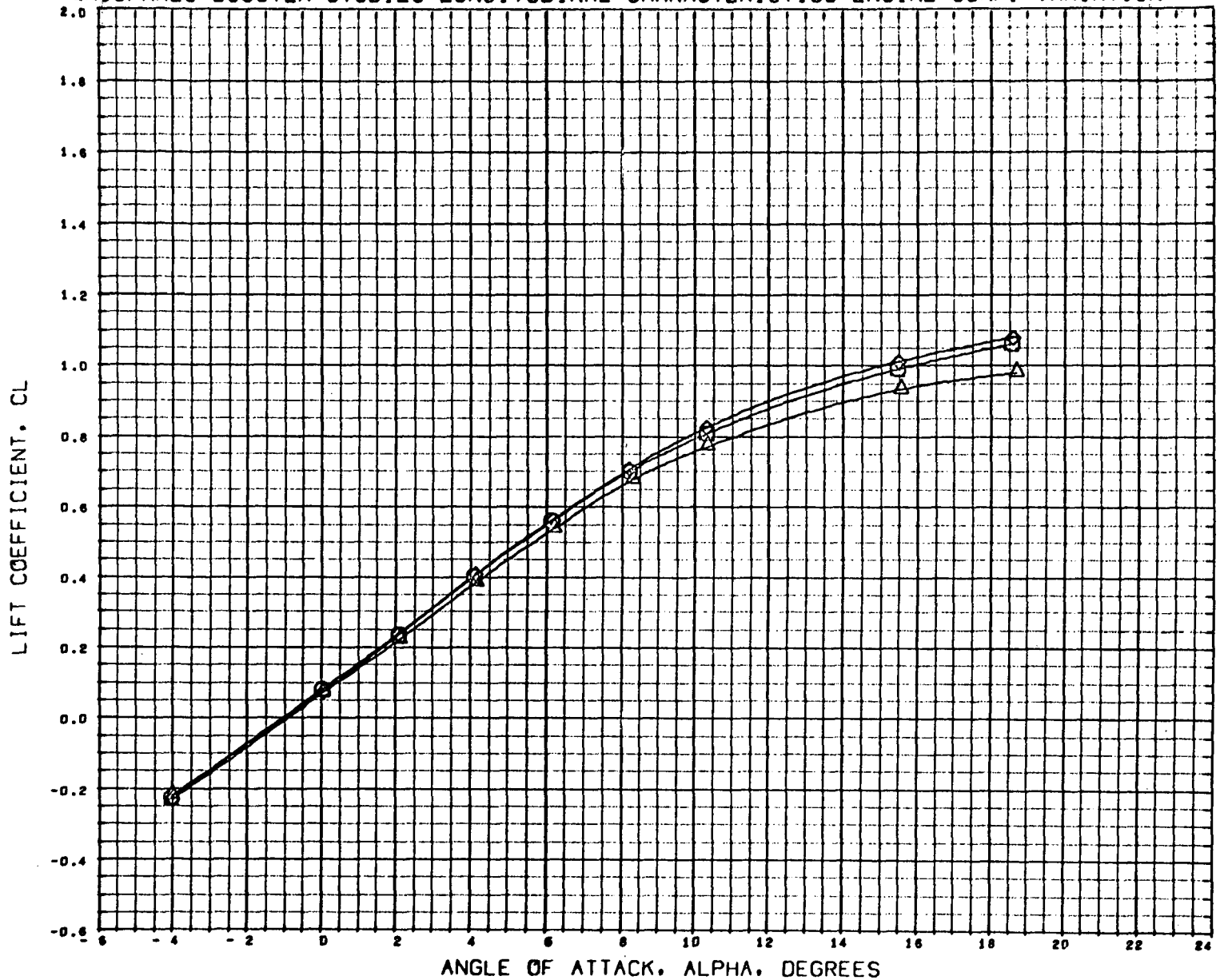
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RNS200)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF	1.3950 SQ.FT.
(RNS182)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF	3.4530 FEET
(RNS001)	DATA NOT AVAILABLE FOR ALL CONDITIONS	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.505

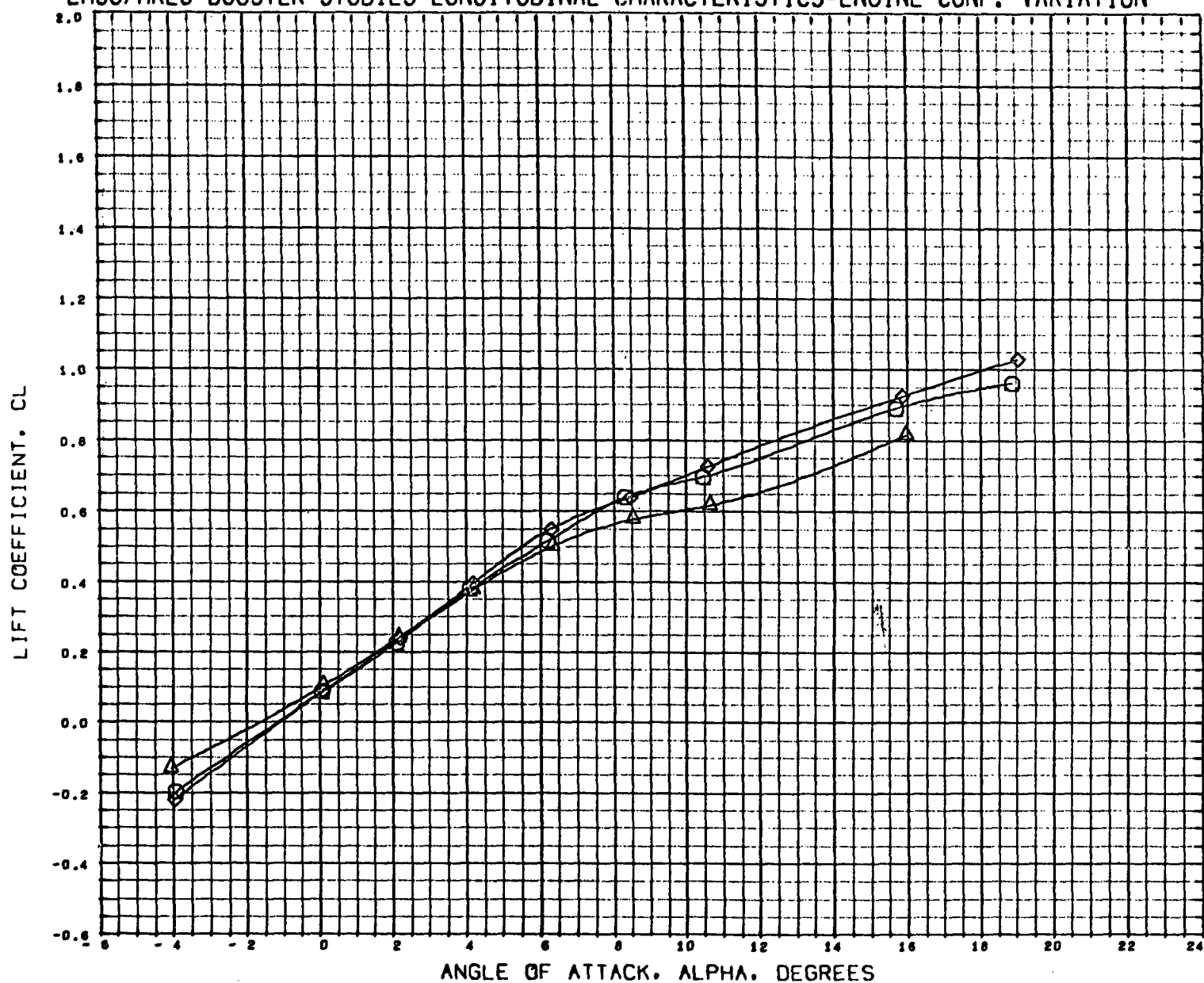
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3200)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.007	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3182)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF	3.4530 FEET
(DN3001)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
							XMRP	2.5950 FEET
							YMRP	0.0000 FEET
							ZMRP	0.0187 FEET
							SCALE	0.0150 SCALE

MACH 0.701

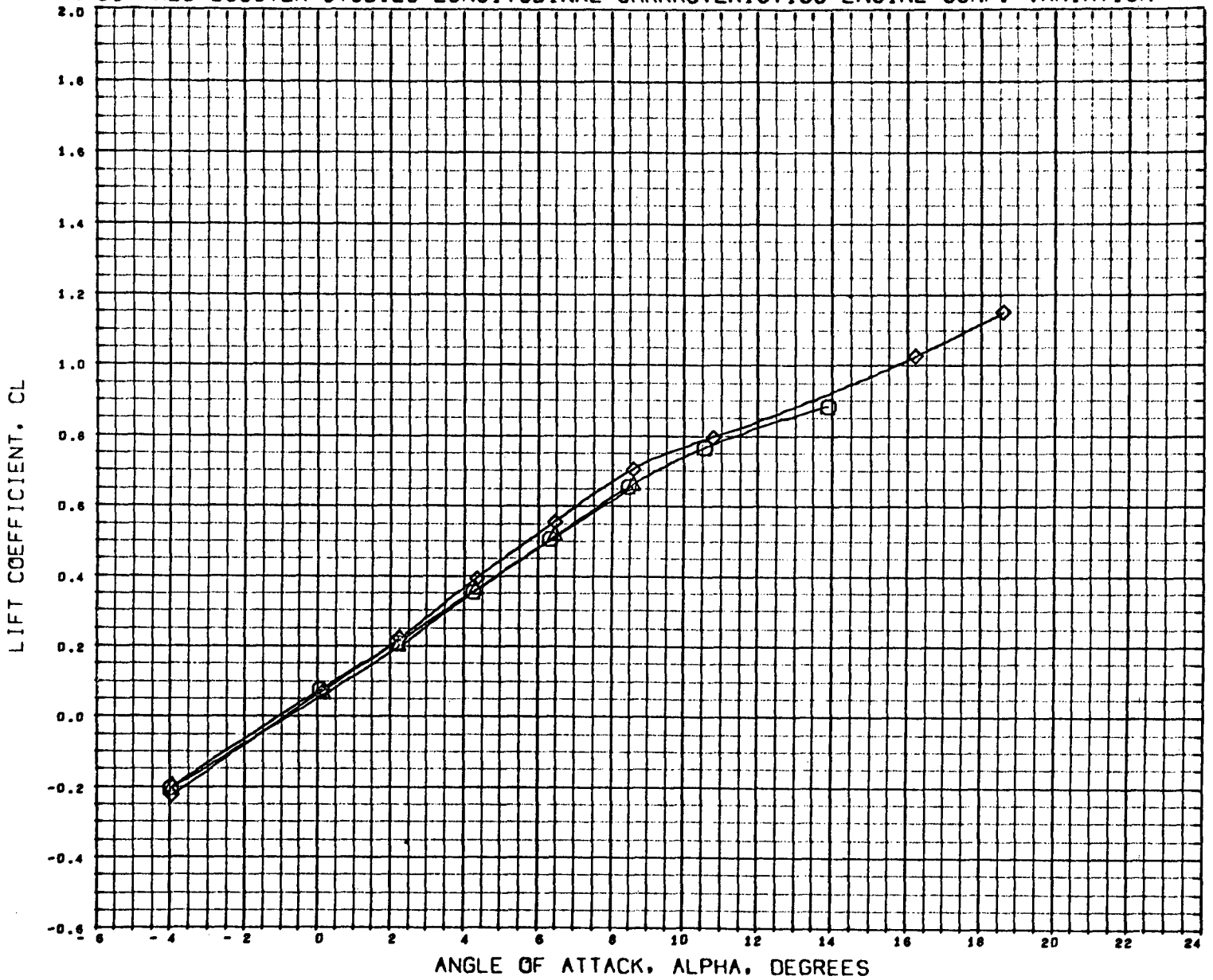
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3200)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V162	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3102)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V164	0.000	0.000	0.000	0.000	LREF	3.4530 FEET
(DN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0107 FEET
						SCALE	0.0150 SCALE

MACH 0.901

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION

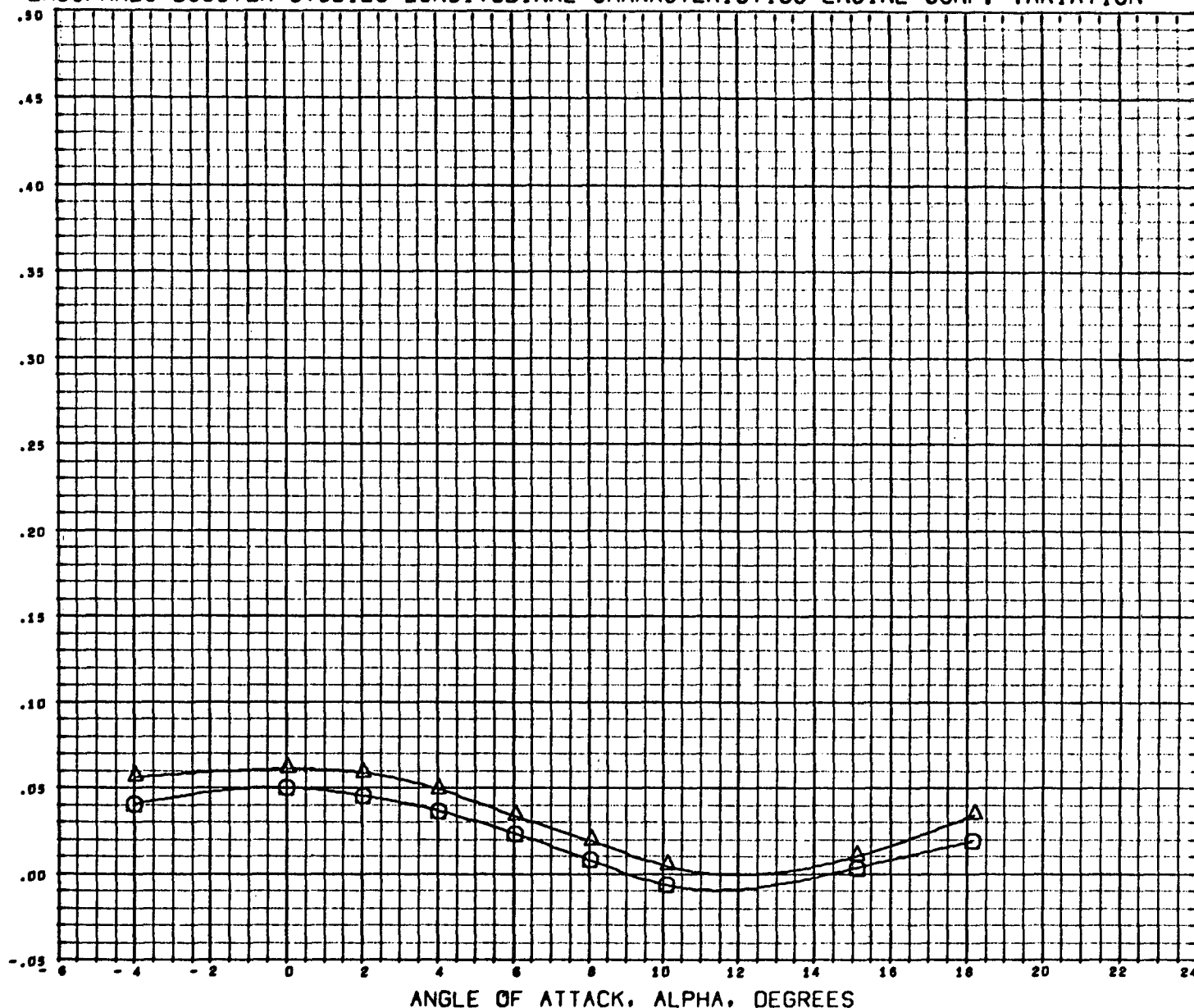


DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION		
(RN3200)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF	1.3550	80. FT.
(RN3102)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF	3.4530	FEET
(ON3001)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530	FEET
							XMRP	2.9950	FEET
							YMRP	0.0000	FEET
							ZMRP	0.0187	FEET
							SCALE	0.0150	SCALE

MACH 1.004

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION

AXIAL FORCE COEFFICIENT, CA

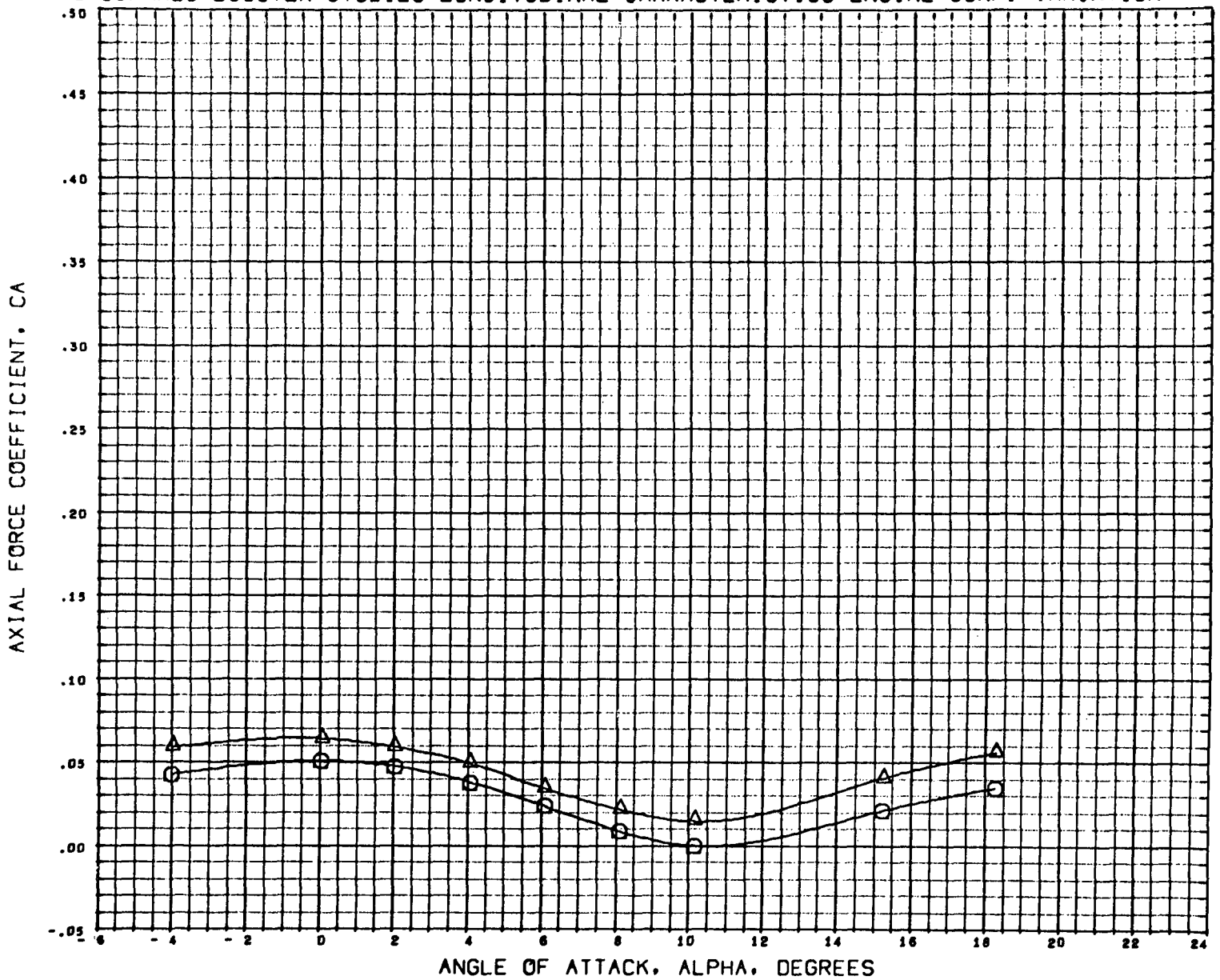


ANGLE OF ATTACK, ALPHA, DEGREES

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3200)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(RN3102)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF	3.4530 FEET
(DN3001)	DATA NOT AVAILABLE FOR ALL CONDITIONS	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0107 FEET
						SCALE	0.0150 SCALE

MACH 0.374

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION

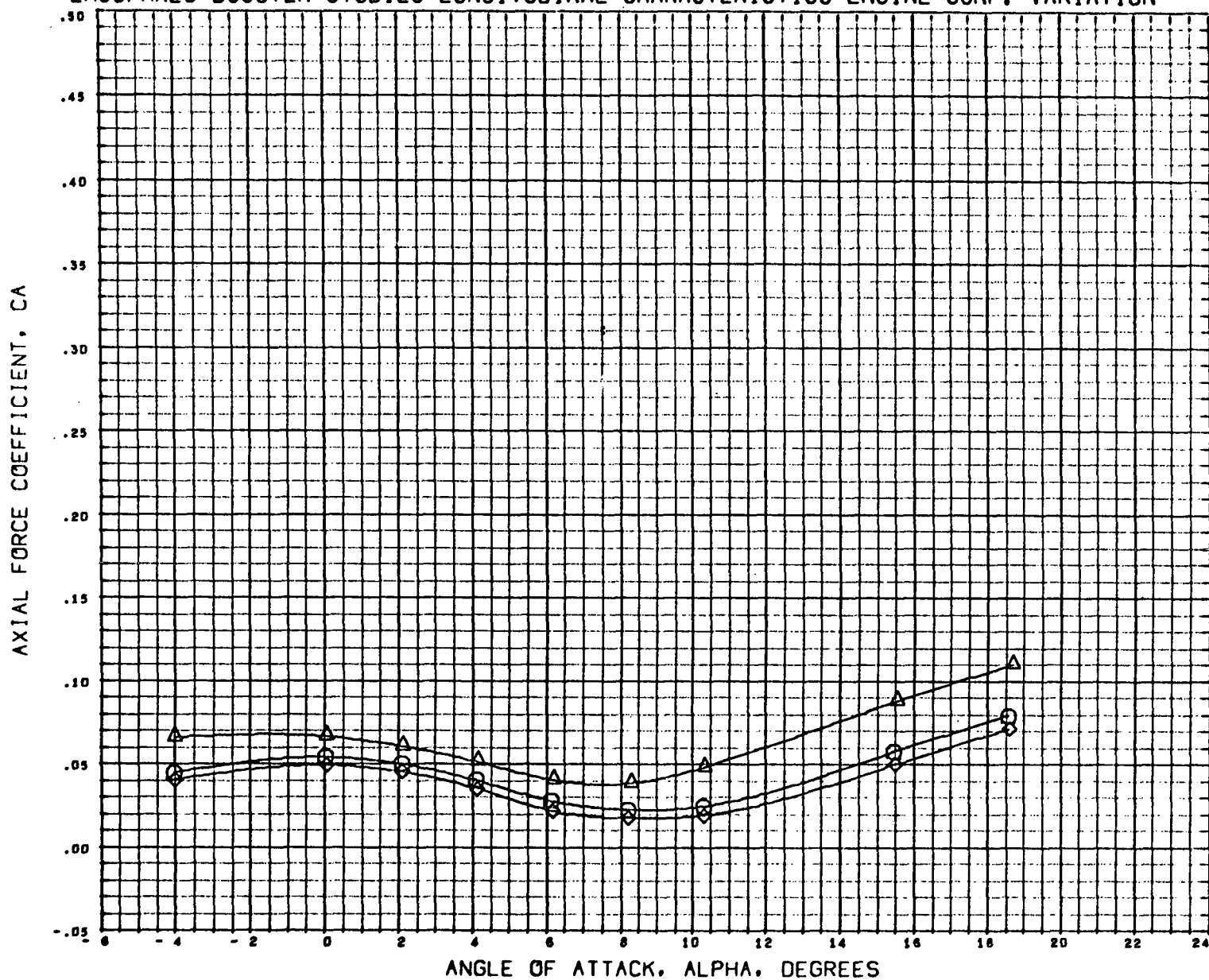


DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (RN3200) ○ NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G2
 (RN3182) Δ NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G4
 (DN3001) ◇ DATA NOT AVAILABLE FOR ALL CONDITIONS

ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
0.000	0.000	0.000	0.000	SREF	1.3550 90.FT.
0.000	0.000	0.000	0.000	LREF	3.4530 FEET
0.000	0.000	0.000	0.000	BREF	3.4530 FEET
				XMRP	2.9950 FEET
				YMRP	0.0000 FEET
				ZMRP	0.0187 FEET
				SCALE	0.0150 SCALE

MACH 0.505

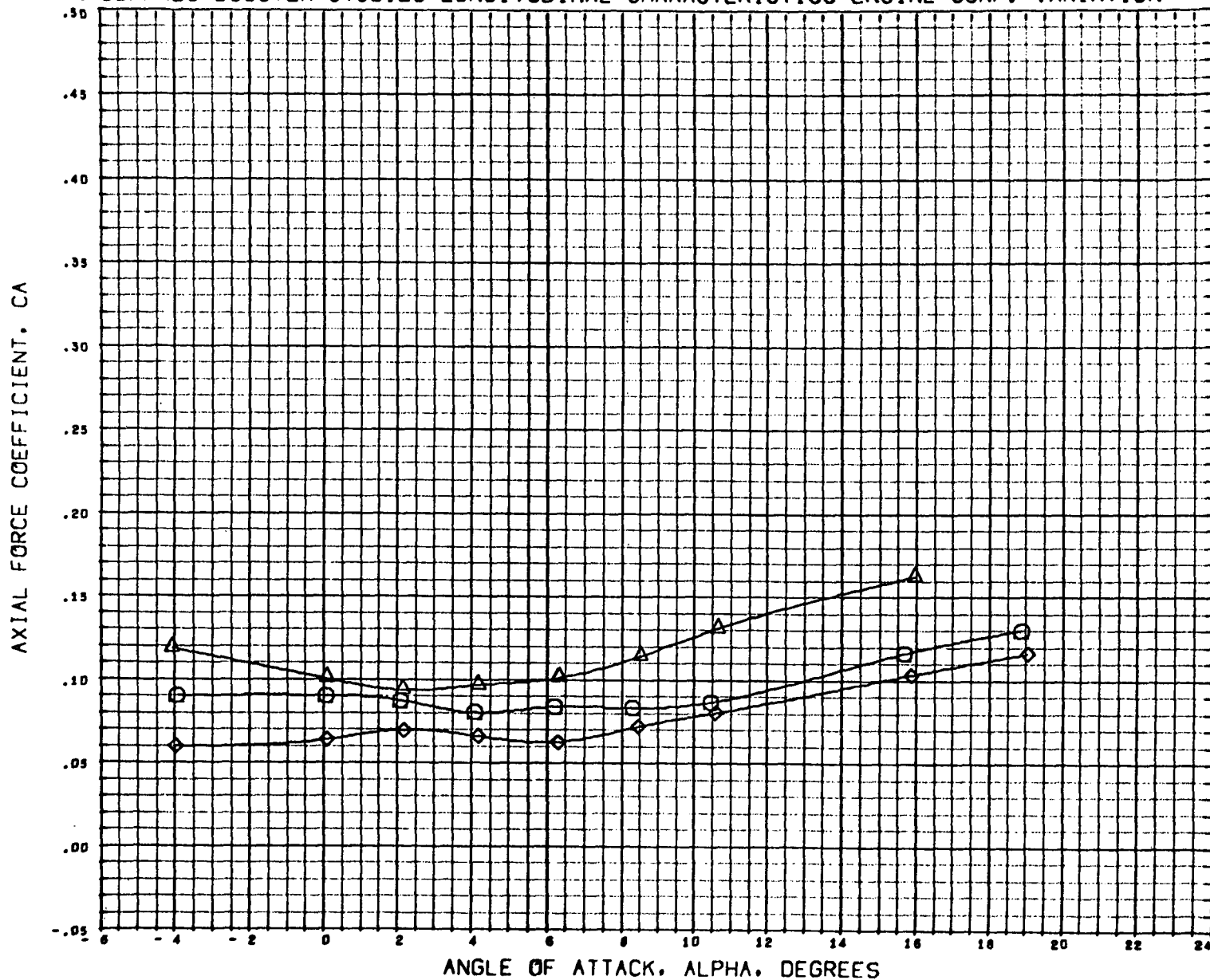
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RNS200)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V162	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RNS182)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V164	0.000	0.000	0.000	0.000	LREF	3.4530 FEET
(RNS001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.701

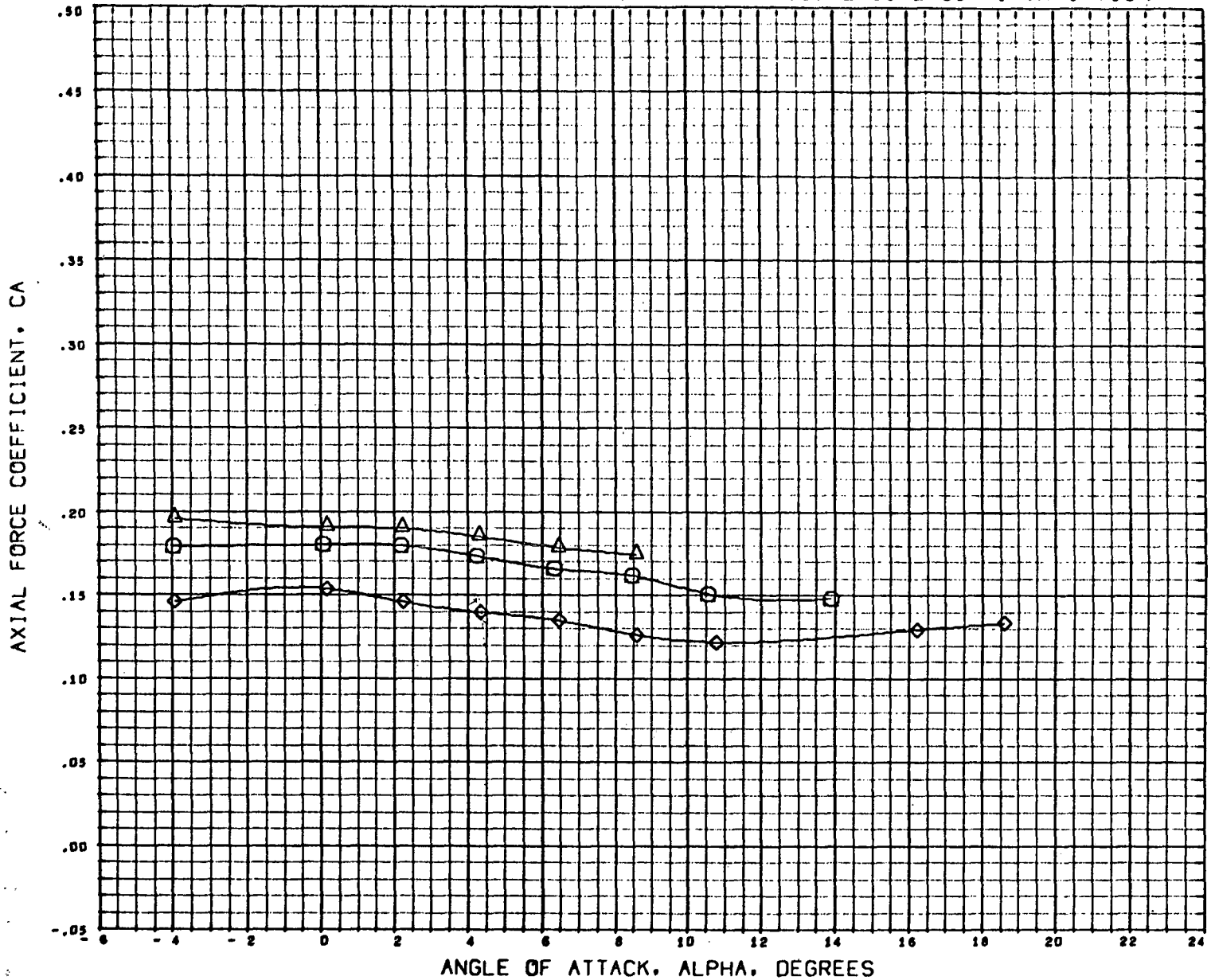
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3200)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF	1.3550 90.FT.
(RN3182)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF	3.4530 FEET
(DN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.901

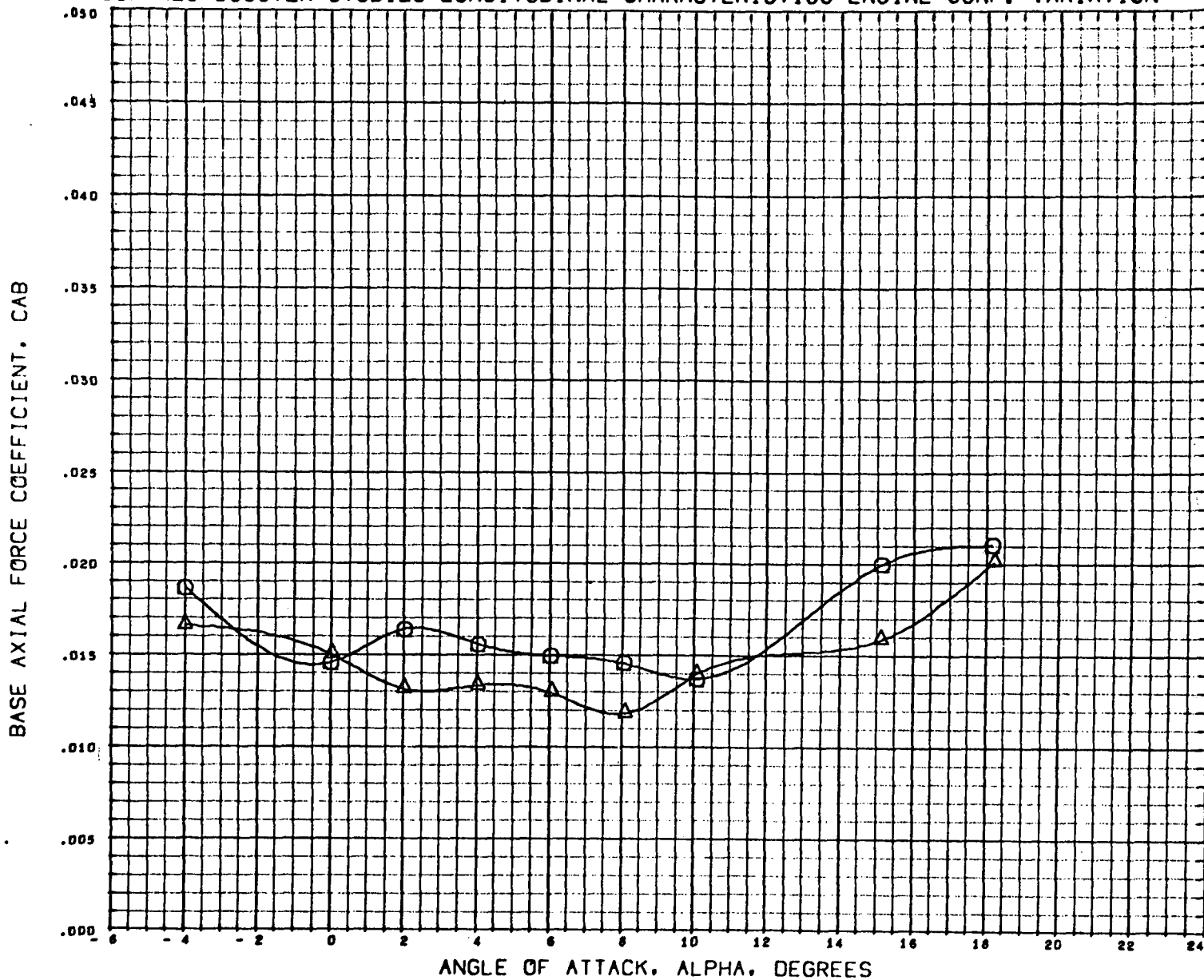
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(R)3200	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V162	0.000	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(R)3102	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V164	0.000	0.000	0.000	0.000	LREF	3.4530 FEET
(DN)3001	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0107 FEET
						SCALE	0.0150 SCALE

MACH 1.004

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION

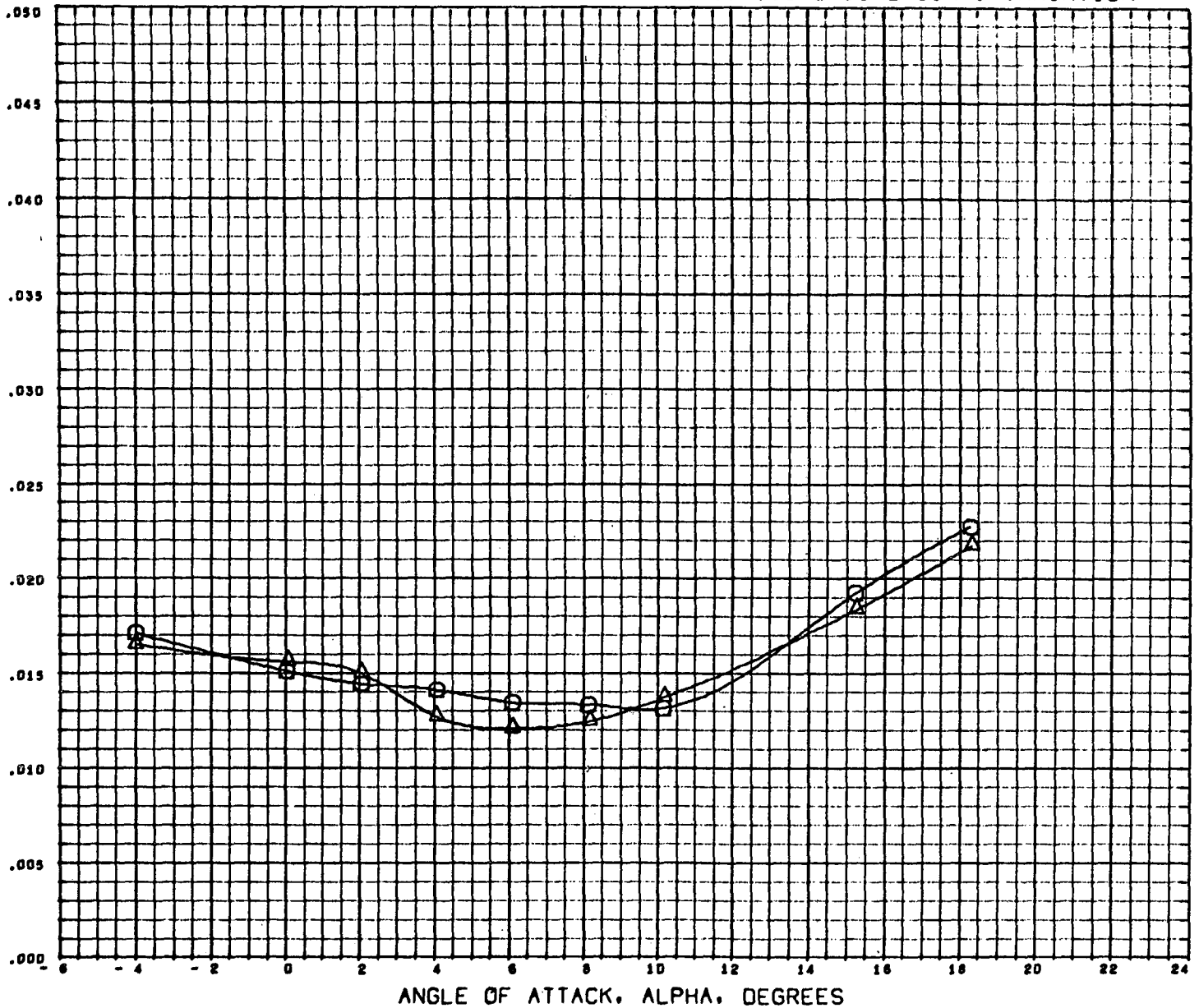


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(R3200)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(R3182)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF	3.4530 FEET
(DN3001)	DATA NOT AVAILABLE FOR ALL CONDITIONS	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
						XMHP	2.5950 FEET
						YMHP	0.0000 FEET
						ZMHP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.374

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION

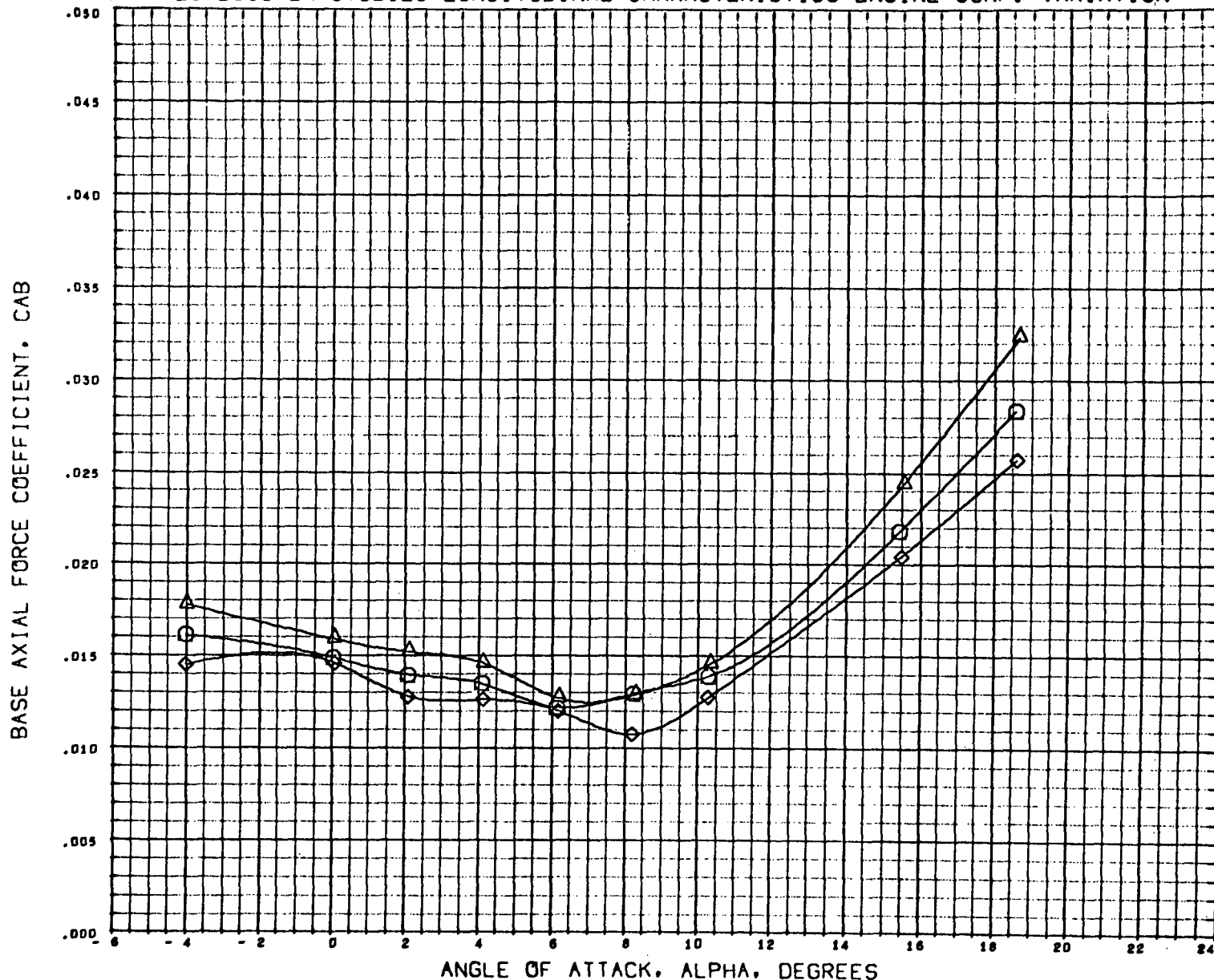
BASE AXIAL FORCE COEFFICIENT, CAB



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3200)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(RN3182)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF	3.4530 FEET
(DN3001)	DATA NOT AVAILABLE FOR ALL CONDITIONS	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.505

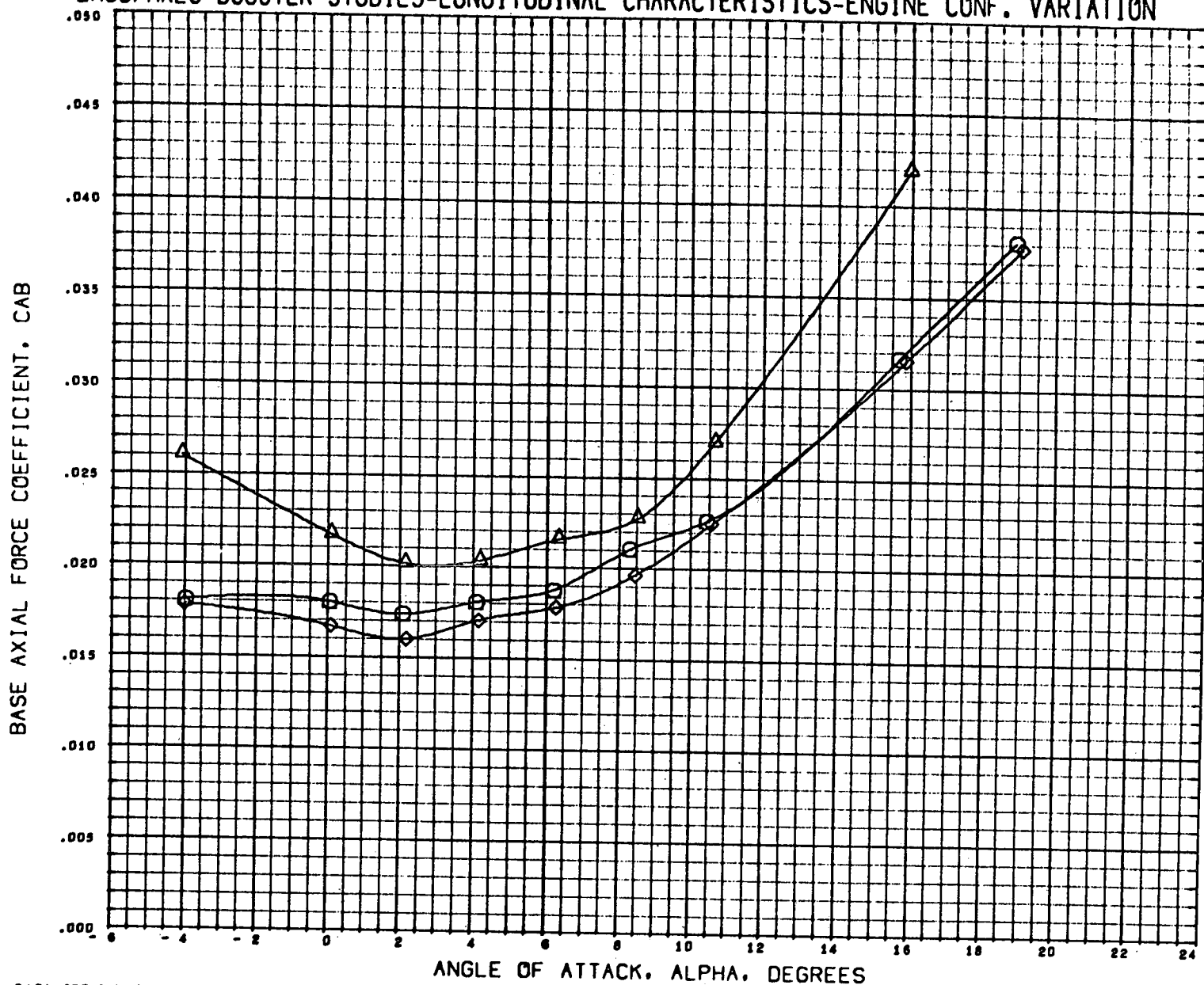
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3200)	NSRDC-3210,MSFC/LMSC BOOSTER 81C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3182)	NSRDC-3210,MSFC/LMSC BOOSTER 81C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF	3.4530 FEET
(DN3001)	NSRDC-3210,MSFC/LMSC BOOSTER 81C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.701

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL
(RN3200)
(RN3182)
(DN3001)

CONFIGURATION DESCRIPTION

NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V162
NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V164
NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1

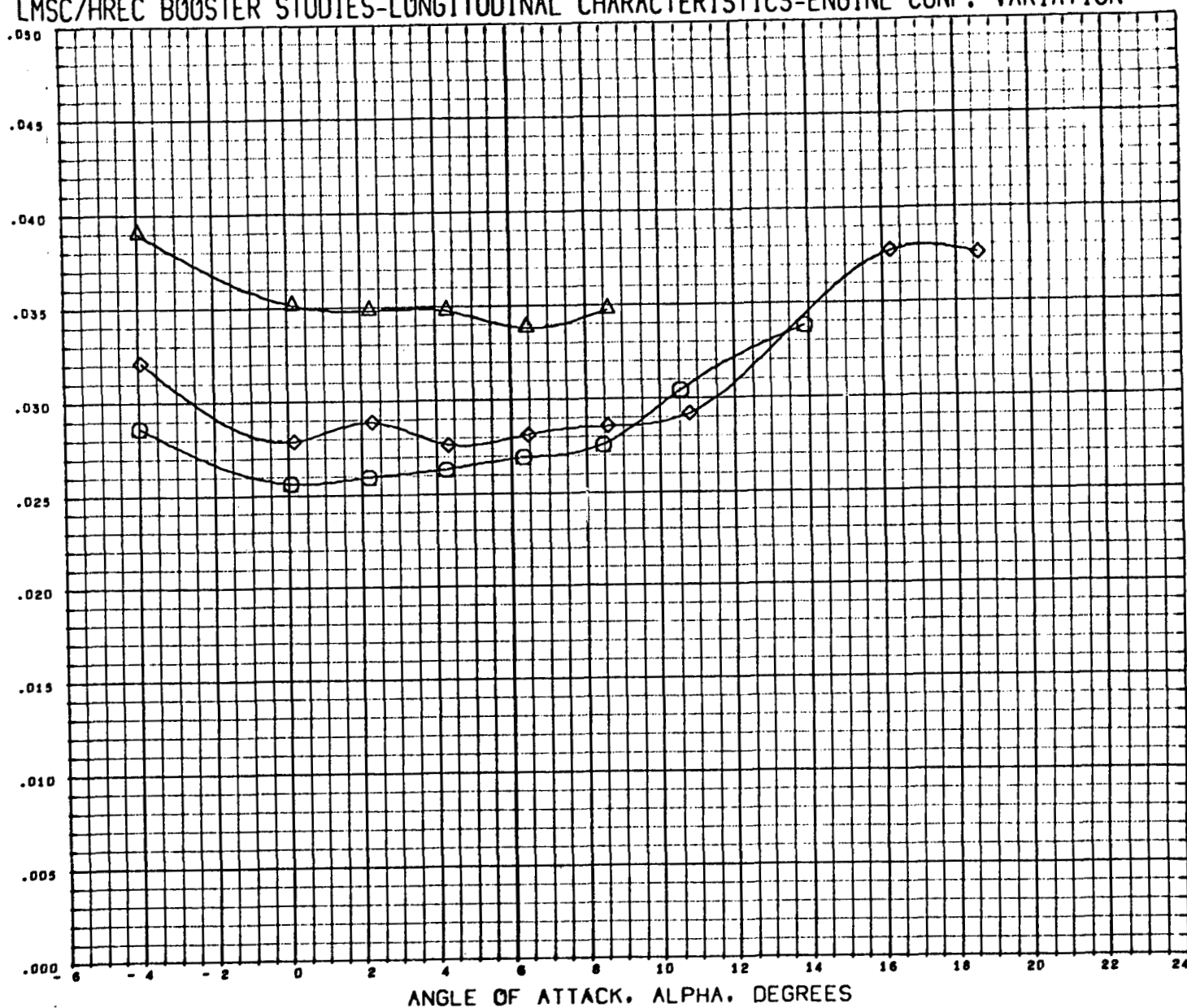
ELEVTR	AILRON	RUDDER	CANARD
0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000

REFERENCE INFORMATION		
SREF	1.3550	SQ. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0167	FEET
SCALE	0.0150	SCALE

MACH 0.901

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION

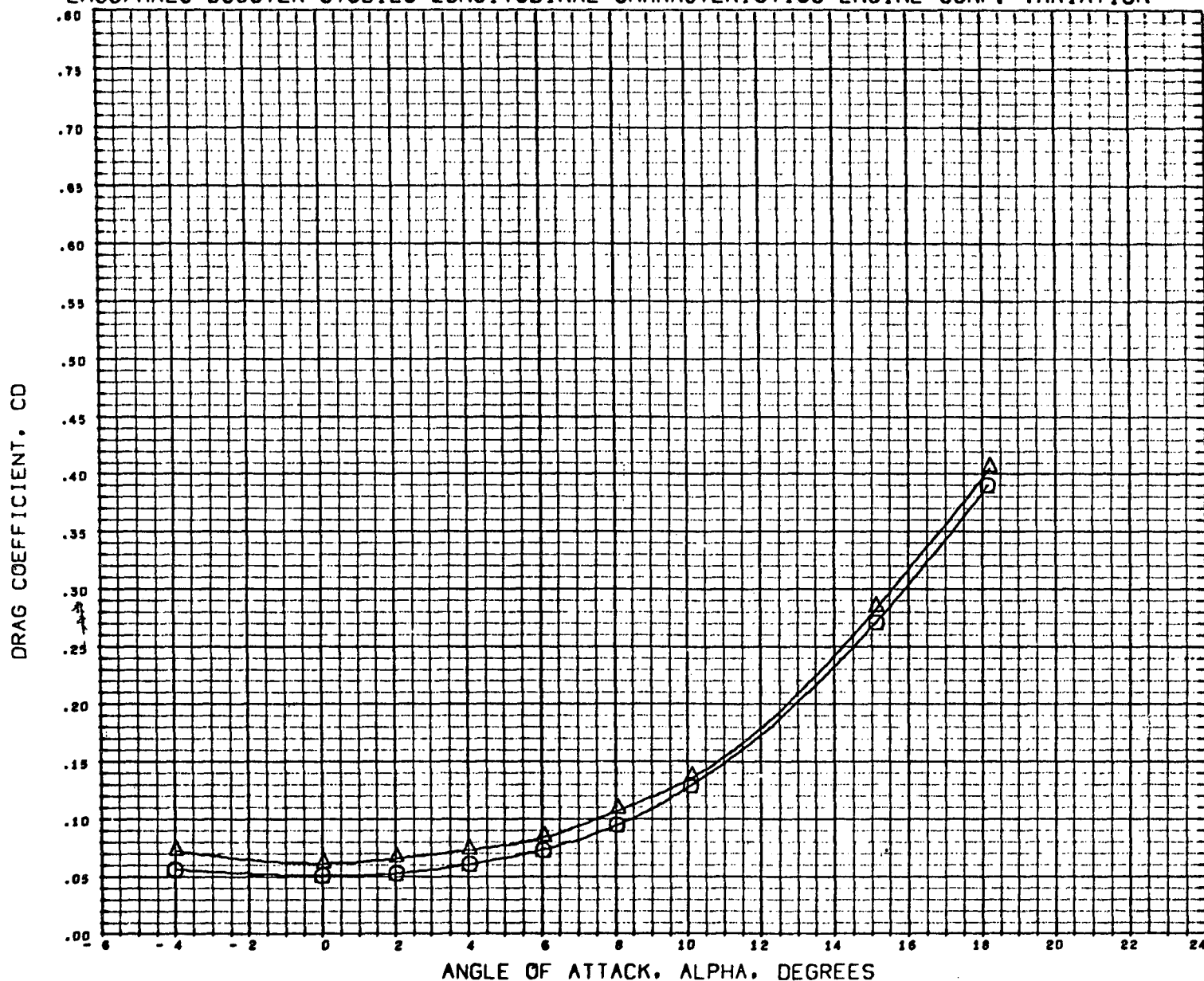
BASE AXIAL FORCE COEFFICIENT, CAB



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3200)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3102)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF	3.4530 FEET
(DN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 1.004

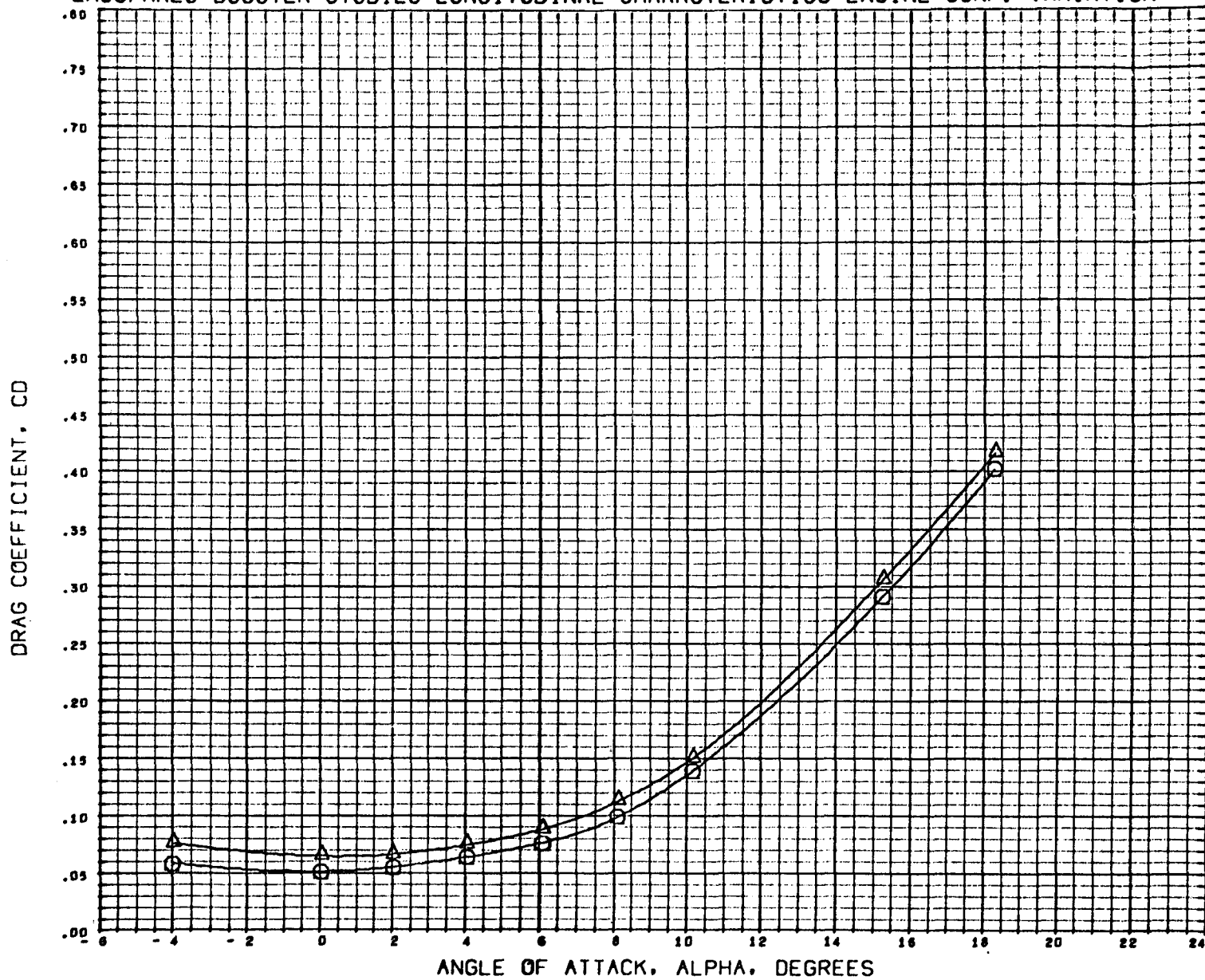
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3200)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V162	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3182)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V164	0.000	0.000	0.000	0.000	LREF	3.4530 FEET
(DN3901)	DATA NOT AVAILABLE FOR ALL CONDITIONS	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.374

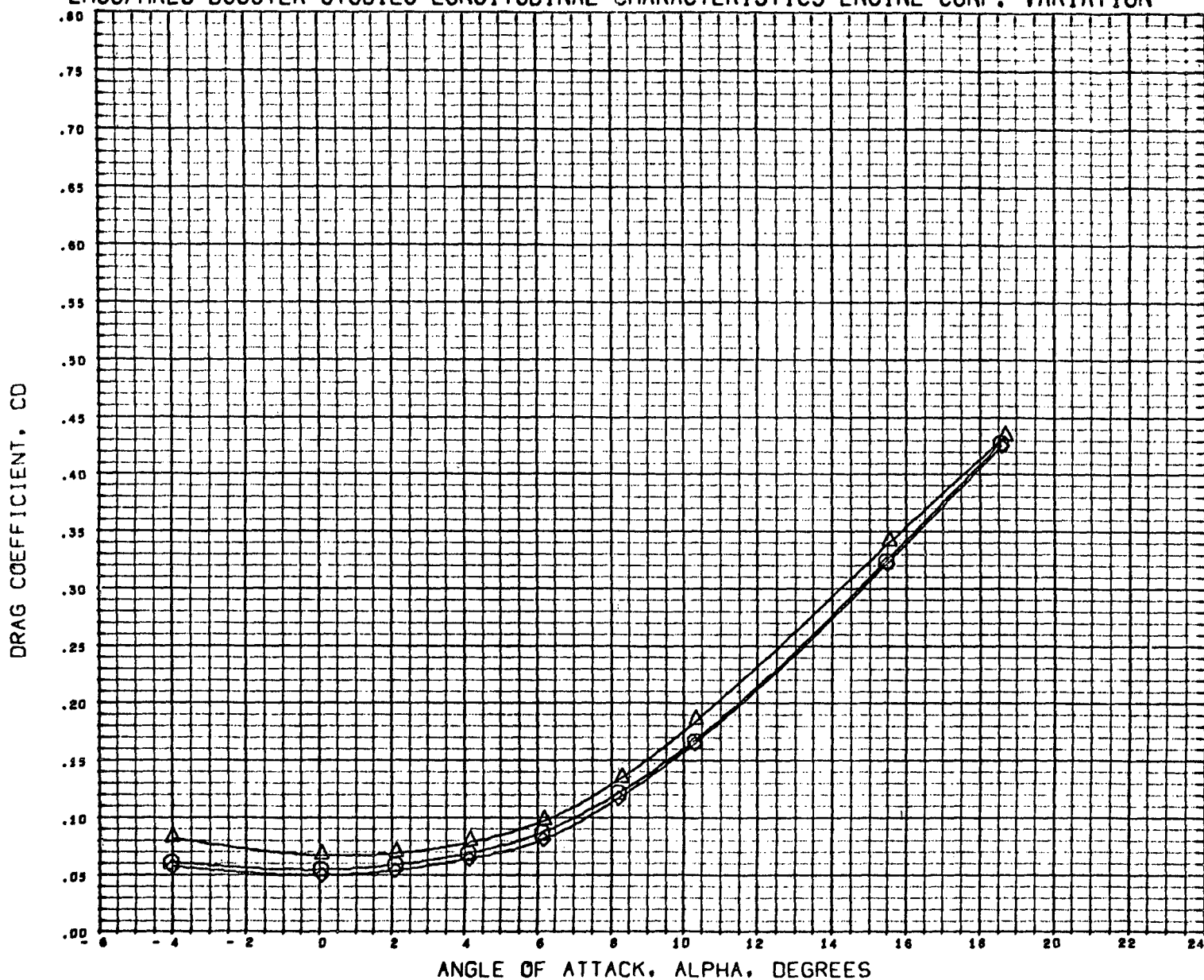
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3200)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(RN3182)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF	3.4930 FEET
(DN3001)	DATA NOT AVAILABLE FOR ALL CONDITIONS	0.000	0.000	0.000	0.000	BREF	3.4930 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.505

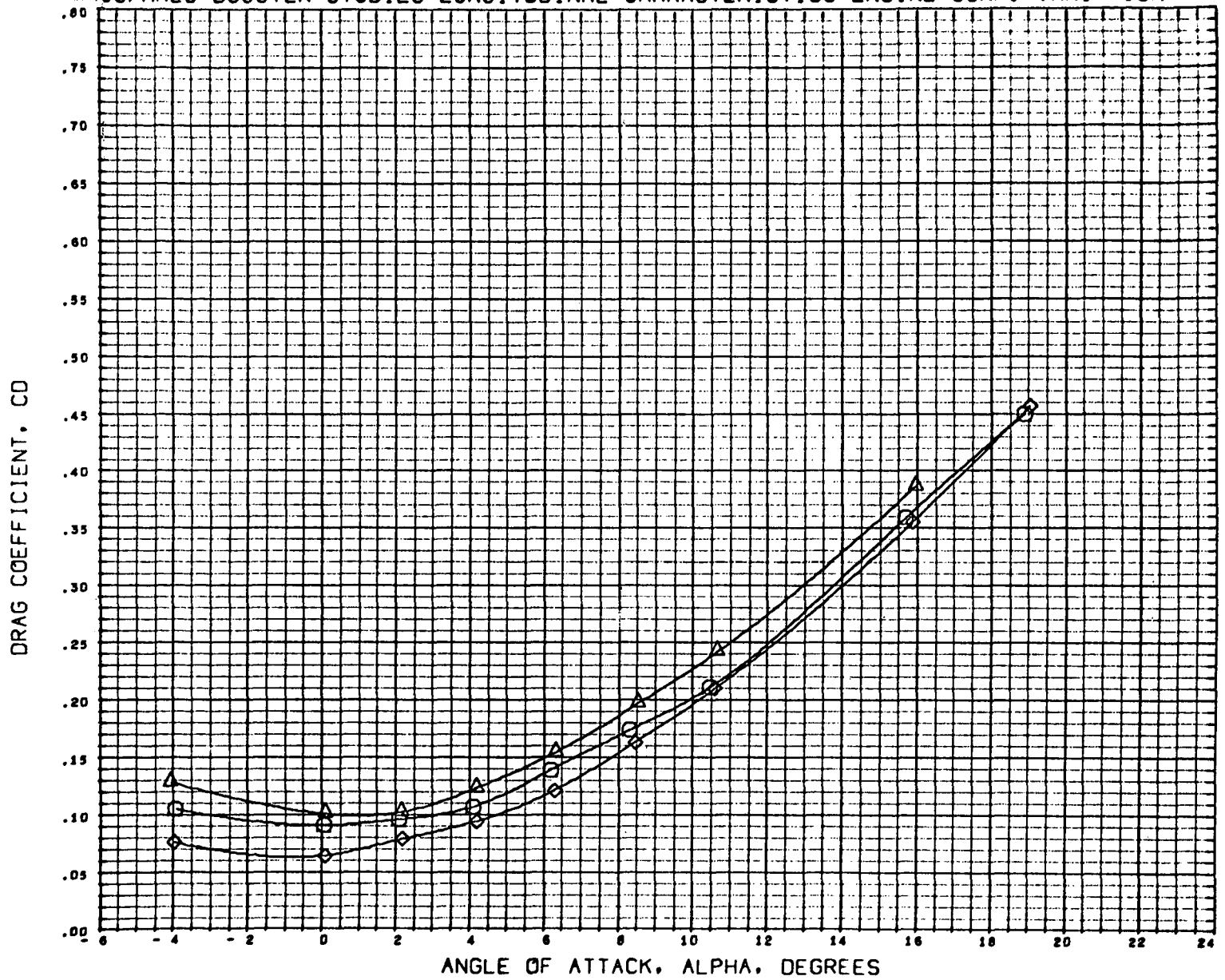
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3200)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3102)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF	3.4530 FEET
(DN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.701

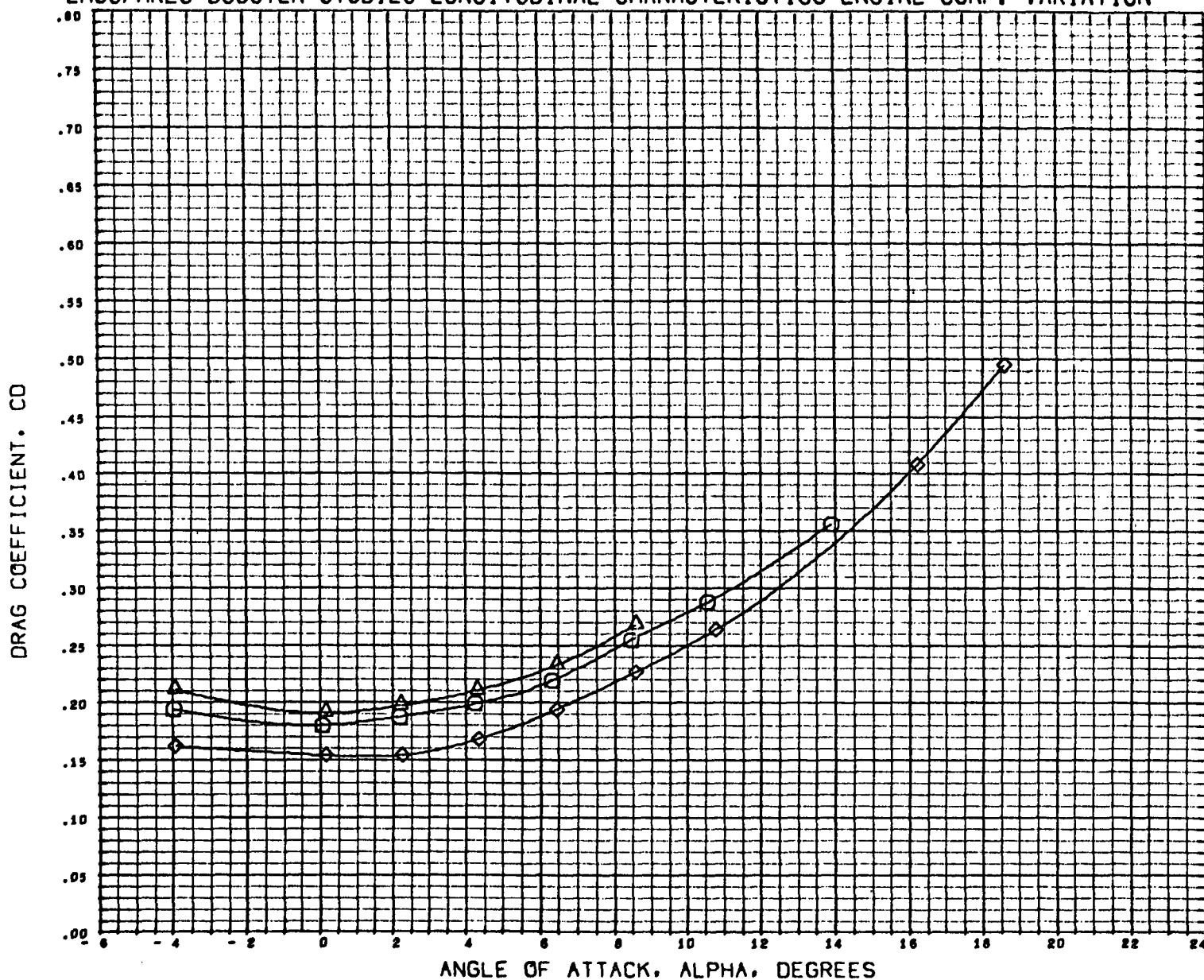
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3200)	NSRDC-3210, NSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF	1.3550 80. FT.
(RN3182)	NSRDC-3210, NSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF	3.4530 FEET
(DN3001)	NSRDC-3210, NSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.901

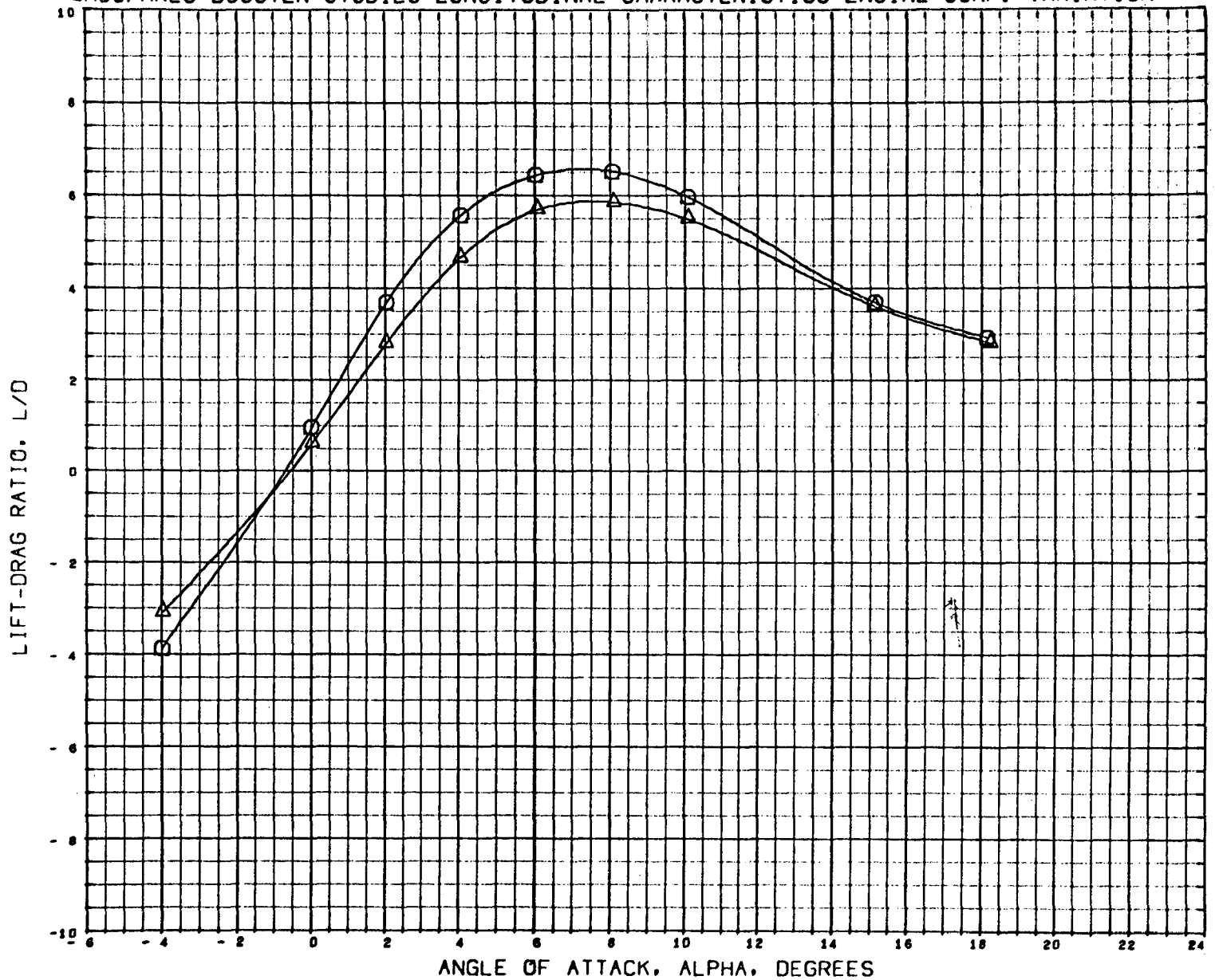
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3200)	○	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V162	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3162)	△	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V164	0.000	0.000	0.000	0.000	LREF	3.4530 FEET
(DN3001)	◇	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
							XMRP	2.5950 FEET
							YMRP	0.0000 FEET
							ZMRP	0.0187 FEET
							SCALE	0.0150 SCALE

MACH 1.004

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (RN3200) ○ NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V162
 (RN3182) △ NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V164
 (DN3001) ◇ DATA NOT AVAILABLE FOR ALL CONDITIONS

ELEVTR	AILRON	RUDDER	CANARD
0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000

REFERENCE INFORMATION		
SREF	1.3550	SQ.FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMHP	2.5950	FEET
YMHP	0.0000	FEET
ZMHP	0.0187	FEET
SCALE	0.0150	SCALE

MACH 0.374

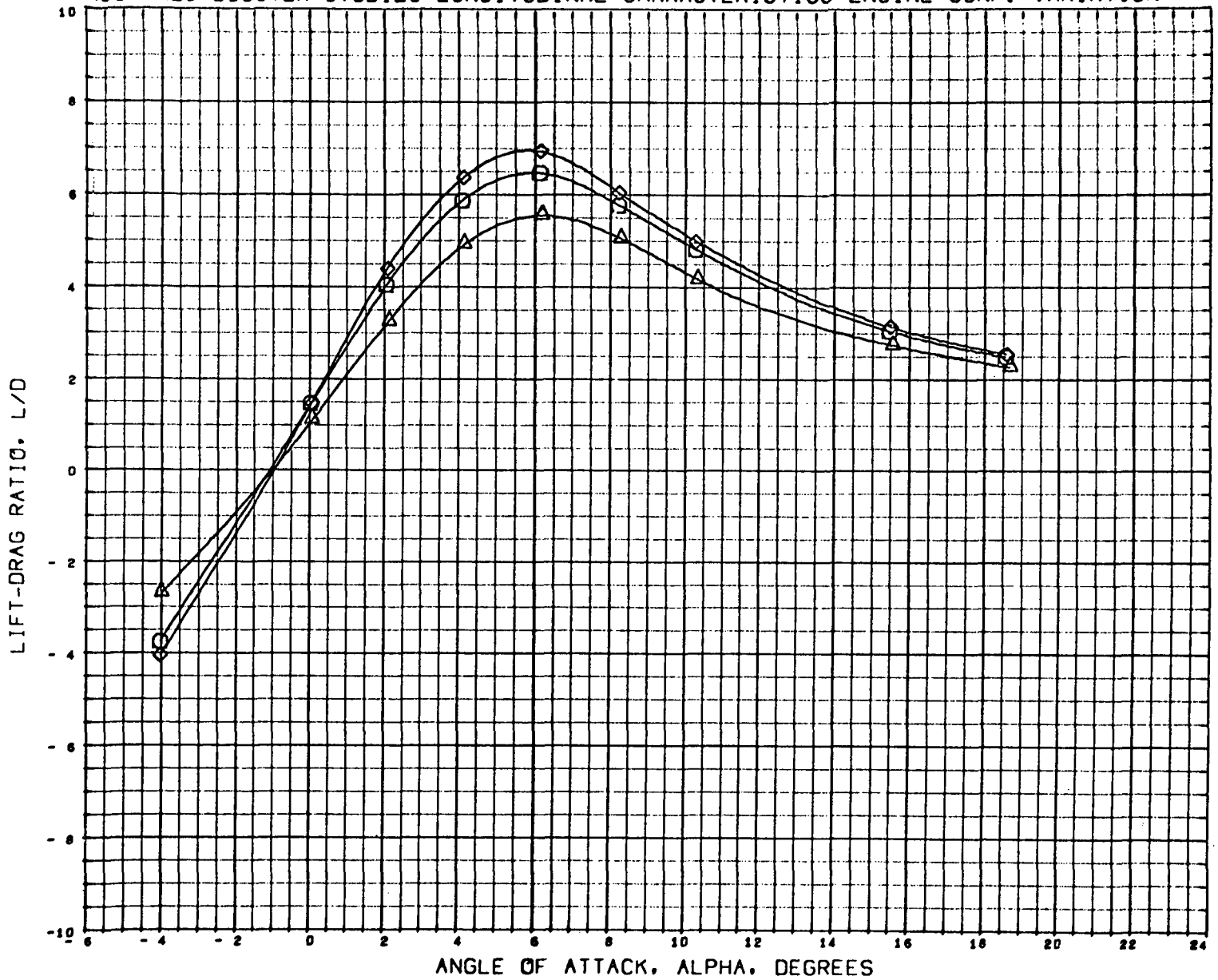
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3200)	NSRDC-3210, NSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3182)	NSRDC-3210, NSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF	3.4530 FEET
(DN3001)	DATA NOT AVAILABLE FOR ALL CONDITIONS	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.9930 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.505

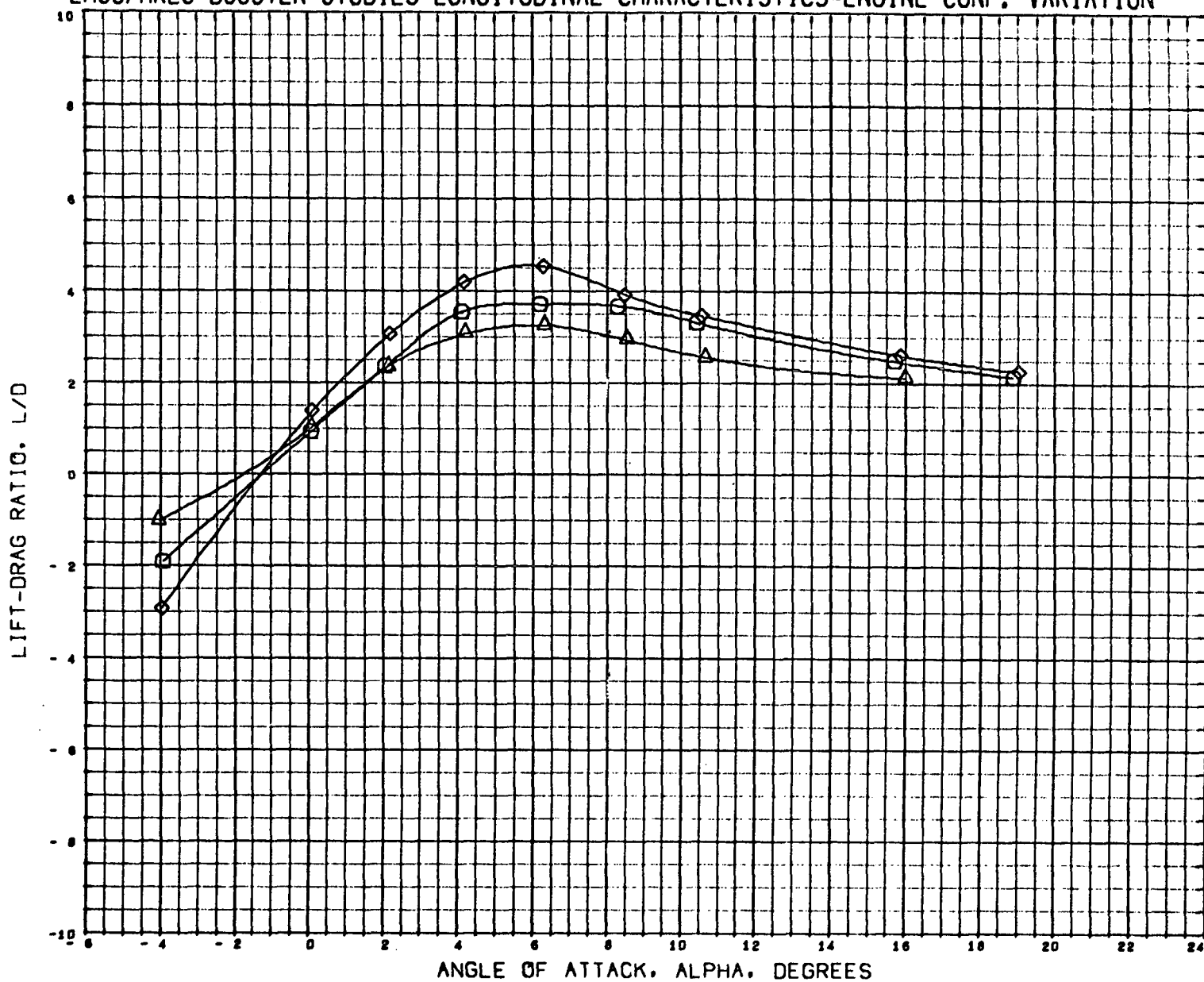
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3200)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF	1.3350 SQ.FT.
(RN3162)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF	3.4530 FEET
(DN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.3950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.701

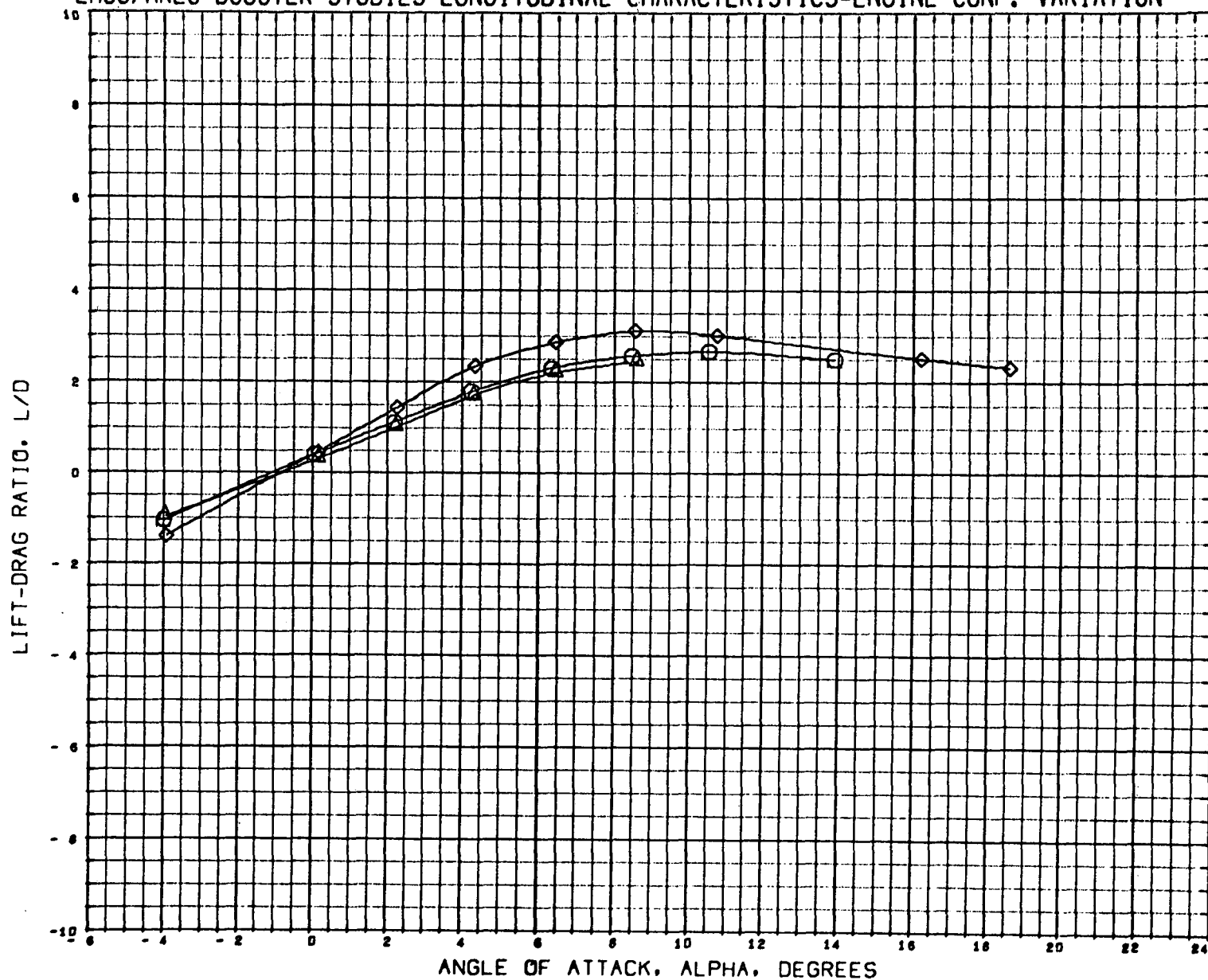
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3200)	NSRDC-3210,MSFC/LMSC BOOSTER 81C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3102)	NSRDC-3210,MSFC/LMSC BOOSTER 81C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF	3.4530 FEET
(DN3001)	NSRDC-3210,MSFC/LMSC BOOSTER 81C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.3950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.901

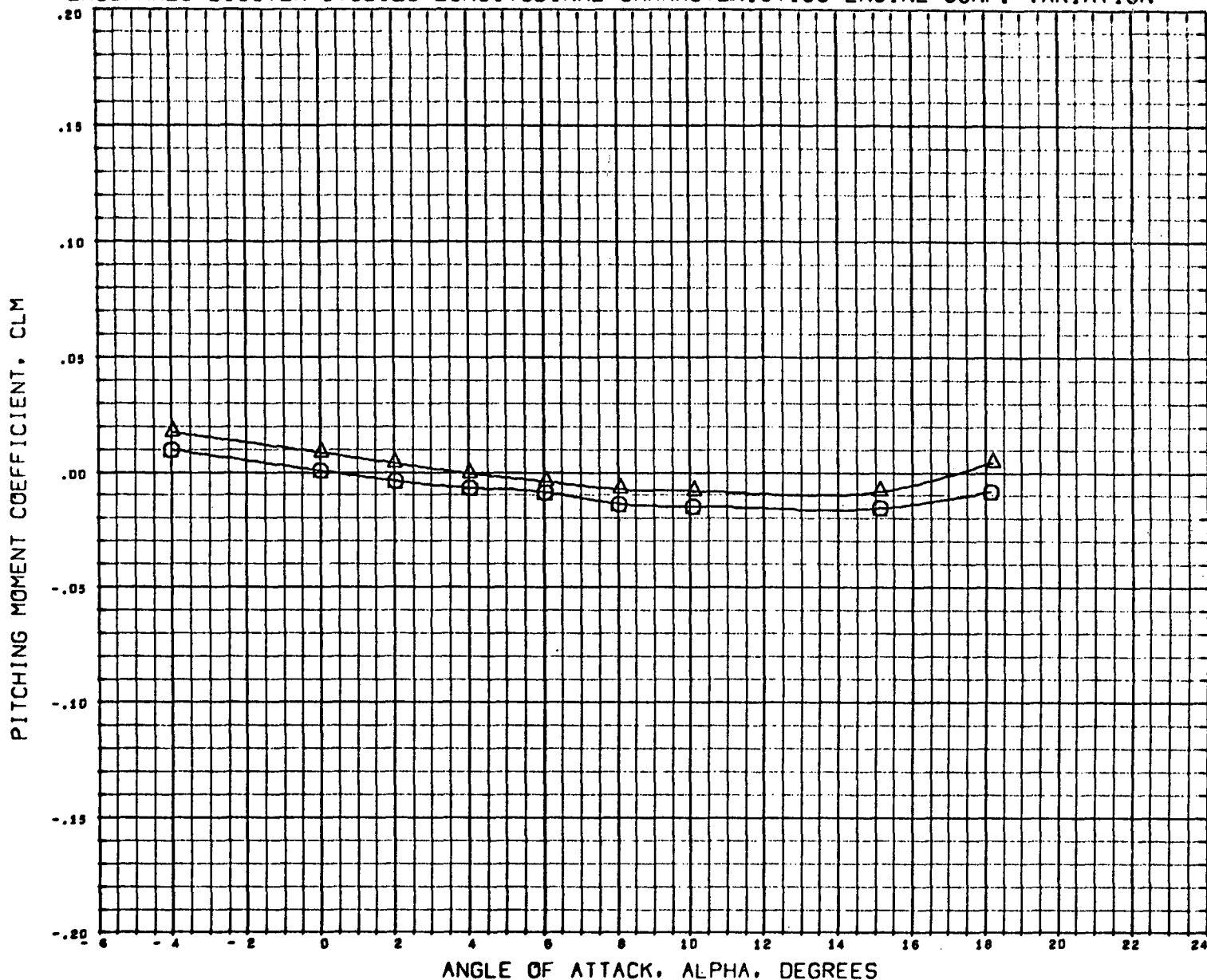
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3200)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3182)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF	3.4530 FEET
(DN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 1.004

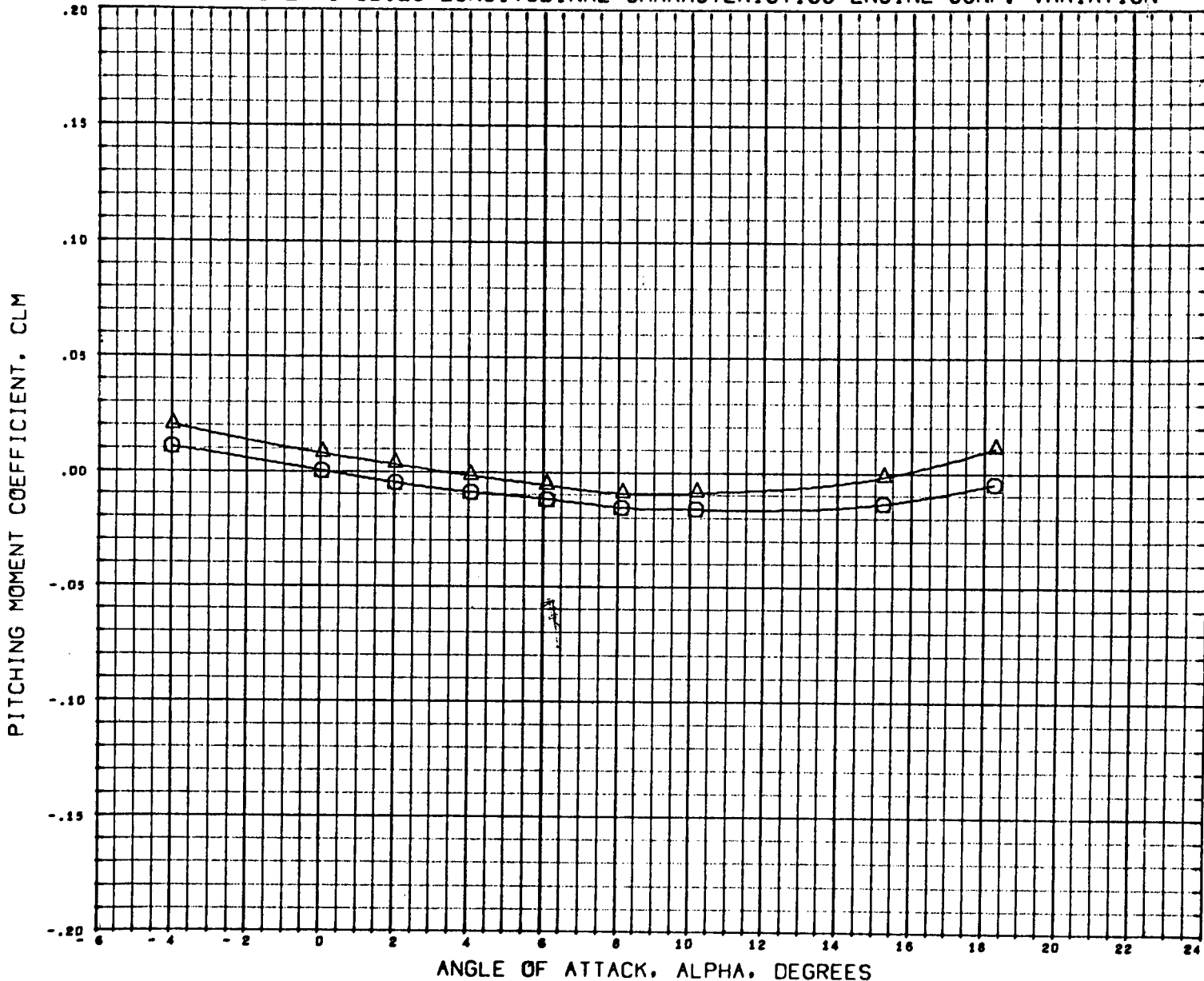
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3200)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V162	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3182)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V164	0.000	0.000	0.000	0.000	LREF	3.4330 FEET
(DN3501)	DATA NOT AVAILABLE FOR ALL CONDITIONS	0.000	0.000	0.000	0.000	BREF	3.4330 FEET
						XMHP	2.5950 FEET
						YMHP	0.0000 FEET
						ZMHP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.374

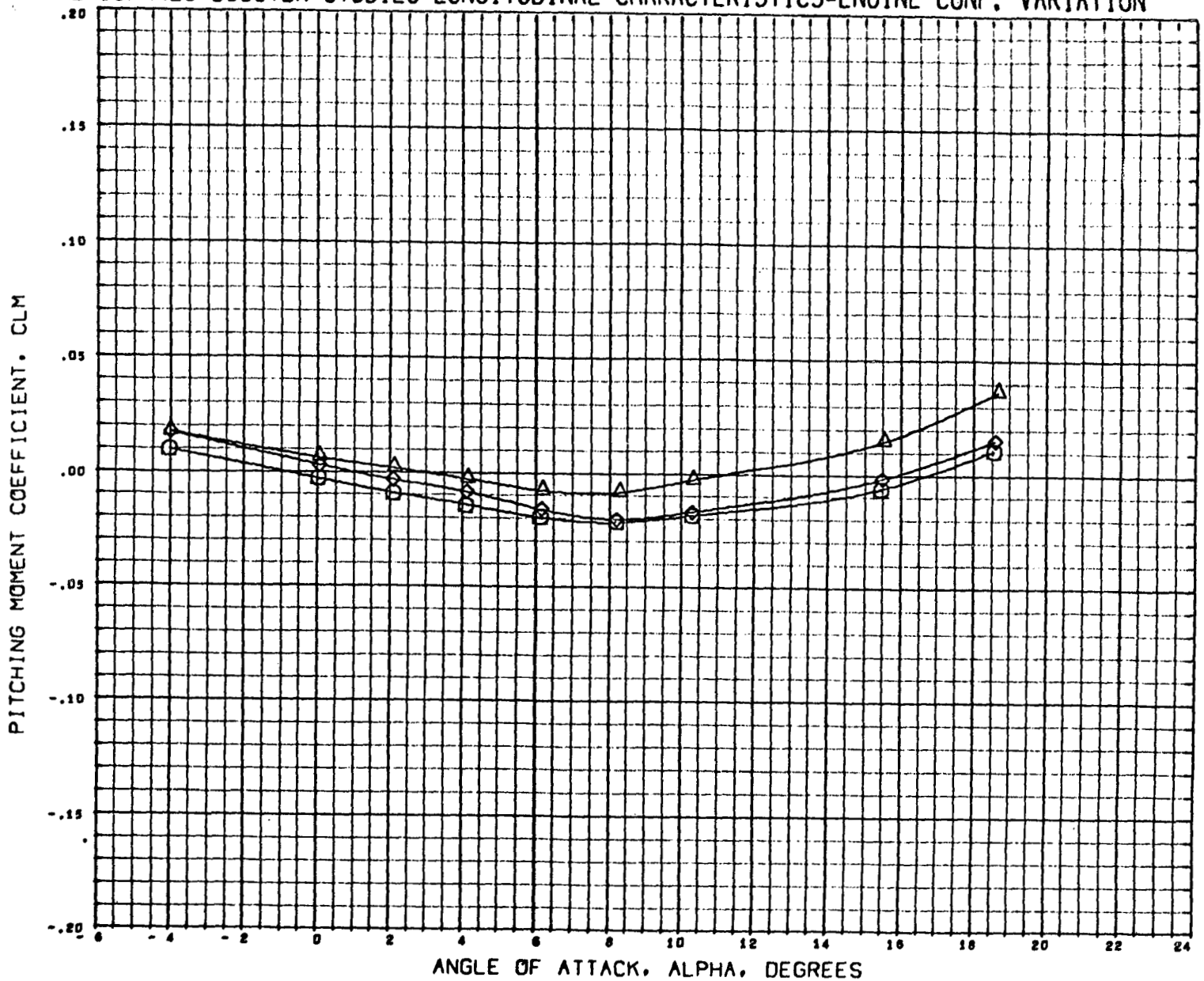
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3200)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3182)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF	3.4530 FEET
(DN3001)	DATA NOT AVAILABLE FOR ALL CONDITIONS	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.505

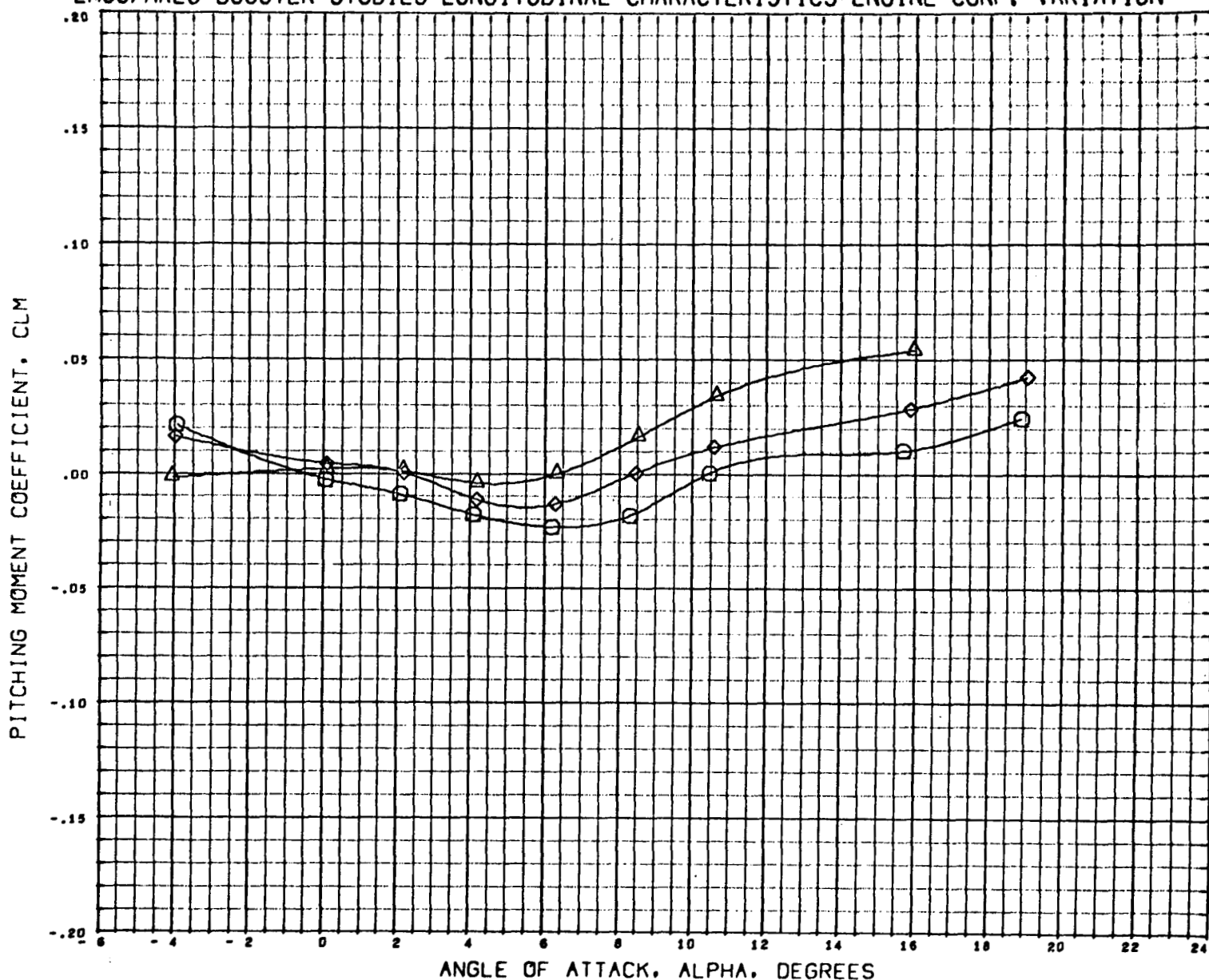
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3200)	NSRDC-3210,HSFC/LMSC BOOSTER B1C2F2W1V162	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3102)	NSRDC-3210,HSFC/LMSC BOOSTER B1C2F2W1V164	0.000	0.000	0.000	0.000	LREF	3.4530 FEET
(DN3001)	NSRDC-3210,HSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.701

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL

(RN3200)
(RN3102)
(DN3001)

○
△
◇

CONFIGURATION DESCRIPTION

NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G2
NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G4
NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1

ELEVTR

0.000
0.000
0.000

AILRON

0.000
0.000
0.000

RUDDER

0.000
0.000
0.000

CANARD

0.000
0.000
0.000

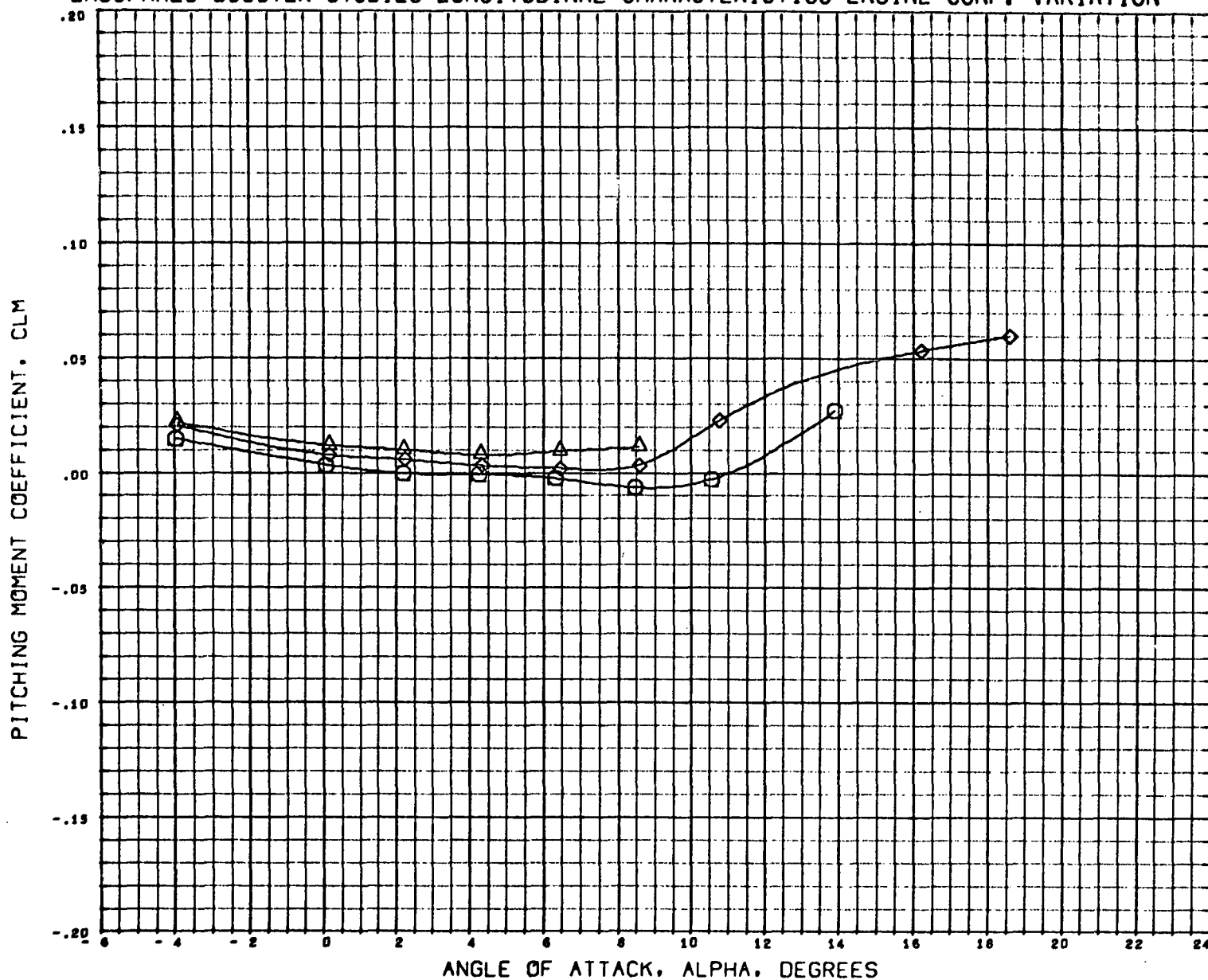
REFERENCE INFORMATION

SREF 1.3550 80. FT.
LREF 3.4530 FEET
BREF 3.4530 FEET
XMRP 2.3950 FEET
YMRP 0.0000 FEET
ZMRP 0.0187 FEET
SCALE 0.0150 SCALE

MACH

0.901

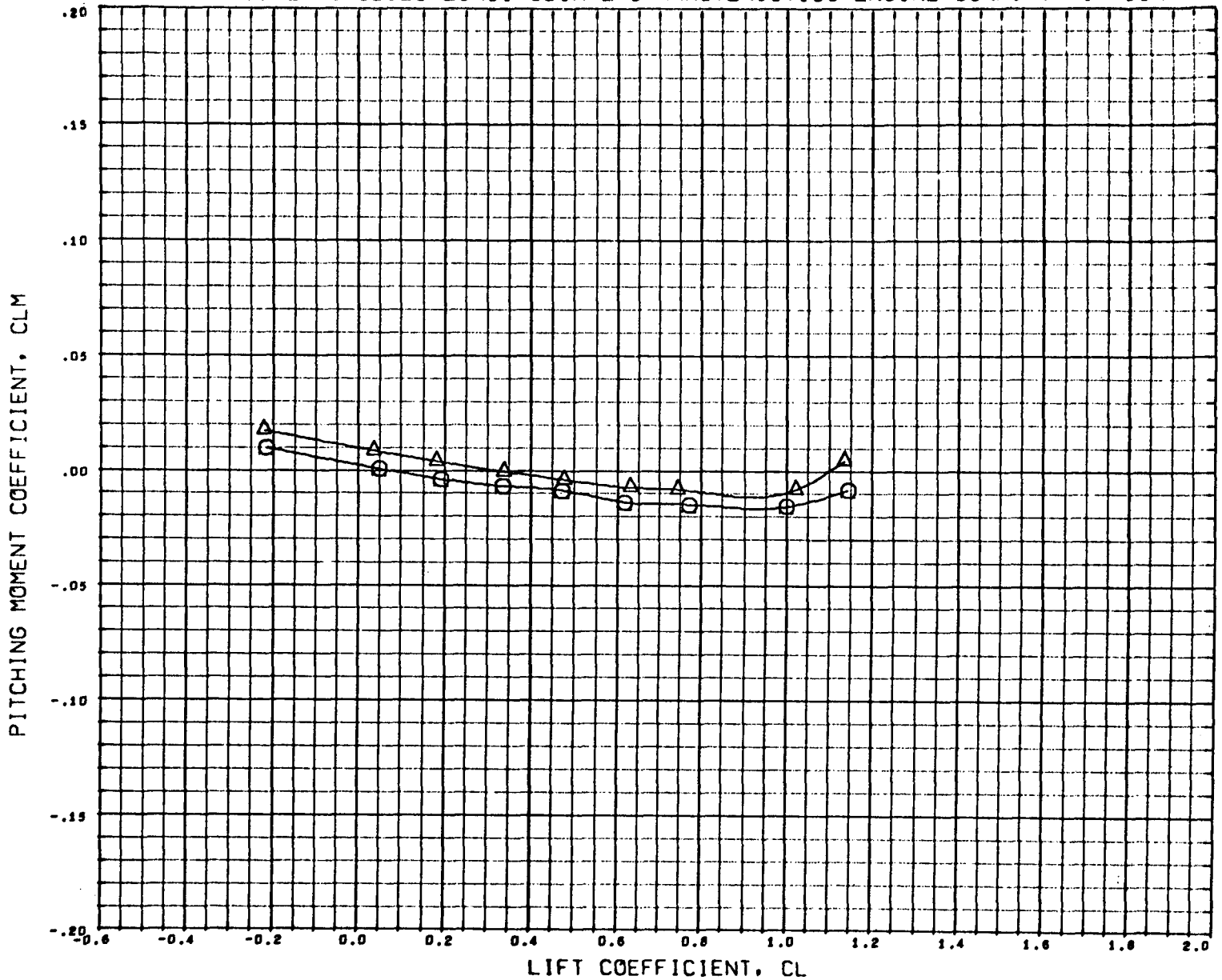
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RNS200)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF	1.3550 50.FT.
(RNS182)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF	3.4530 FEET
(DN3001)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
						XHRP	2.5950 FEET
						YHRP	0.0000 FEET
						ZHRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 1.004

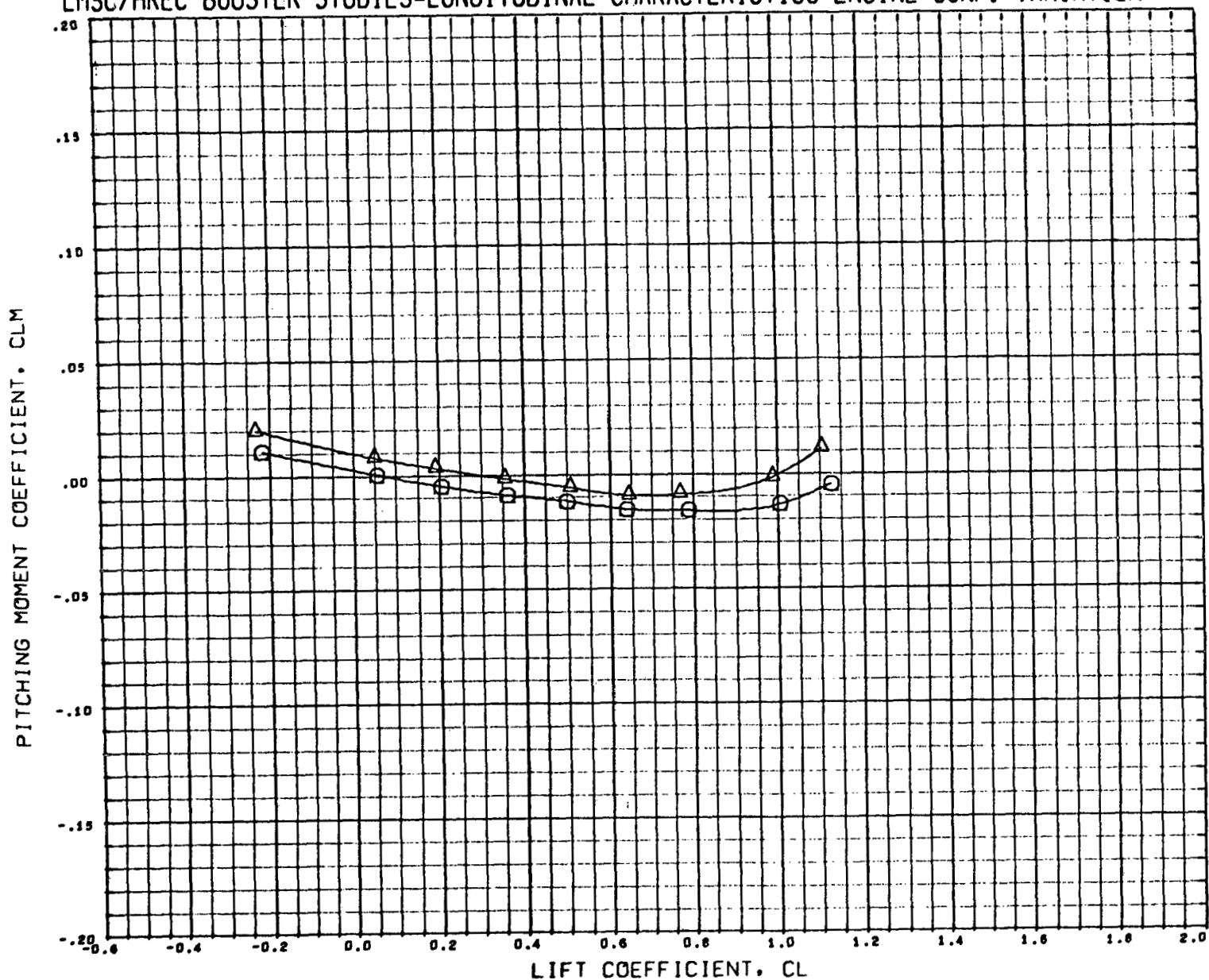
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3200)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V162	0.000	0.000	0.000	0.000	SREF	1.3550 30.FT.
(RN3102)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V164	0.000	0.000	0.000	0.000	LREF	3.4530 FEET
(DN3001)	DATA NOT AVAILABLE FOR ALL CONDITIONS	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.374

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



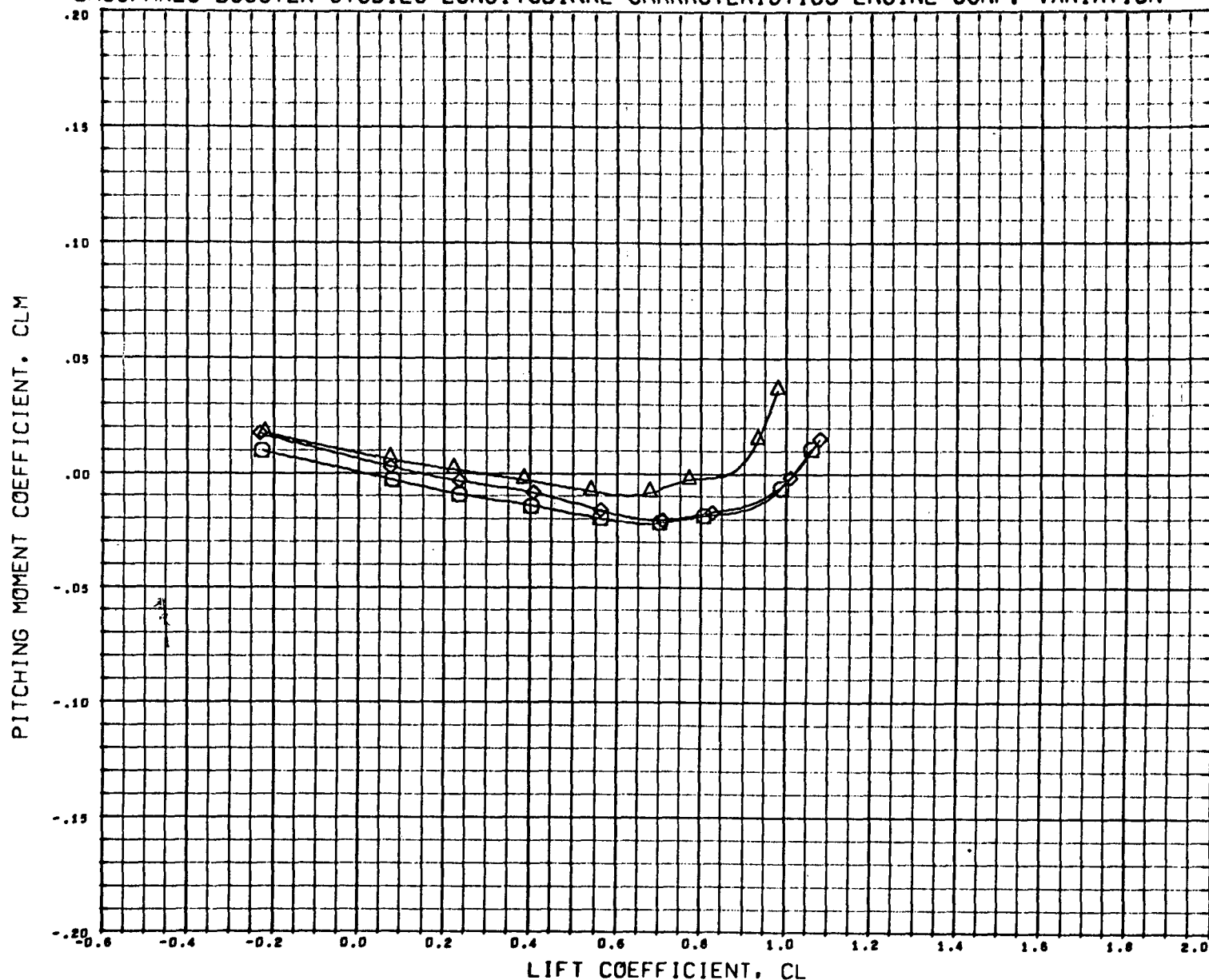
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(RN3200)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G2
(RN3182)	NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1G4
(DN3001)	DATA NOT AVAILABLE FOR ALL CONDITIONS

ELEVTR	AILRON	RUDDER	CANARD
0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000

REFERENCE INFORMATION		
SREF	1.3550	50. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMPP	2.5950	FEET
YMPP	0.0000	FEET
ZMPP	0.0187	FEET
SCALE	0.0150	SCALE

MACH 0.905

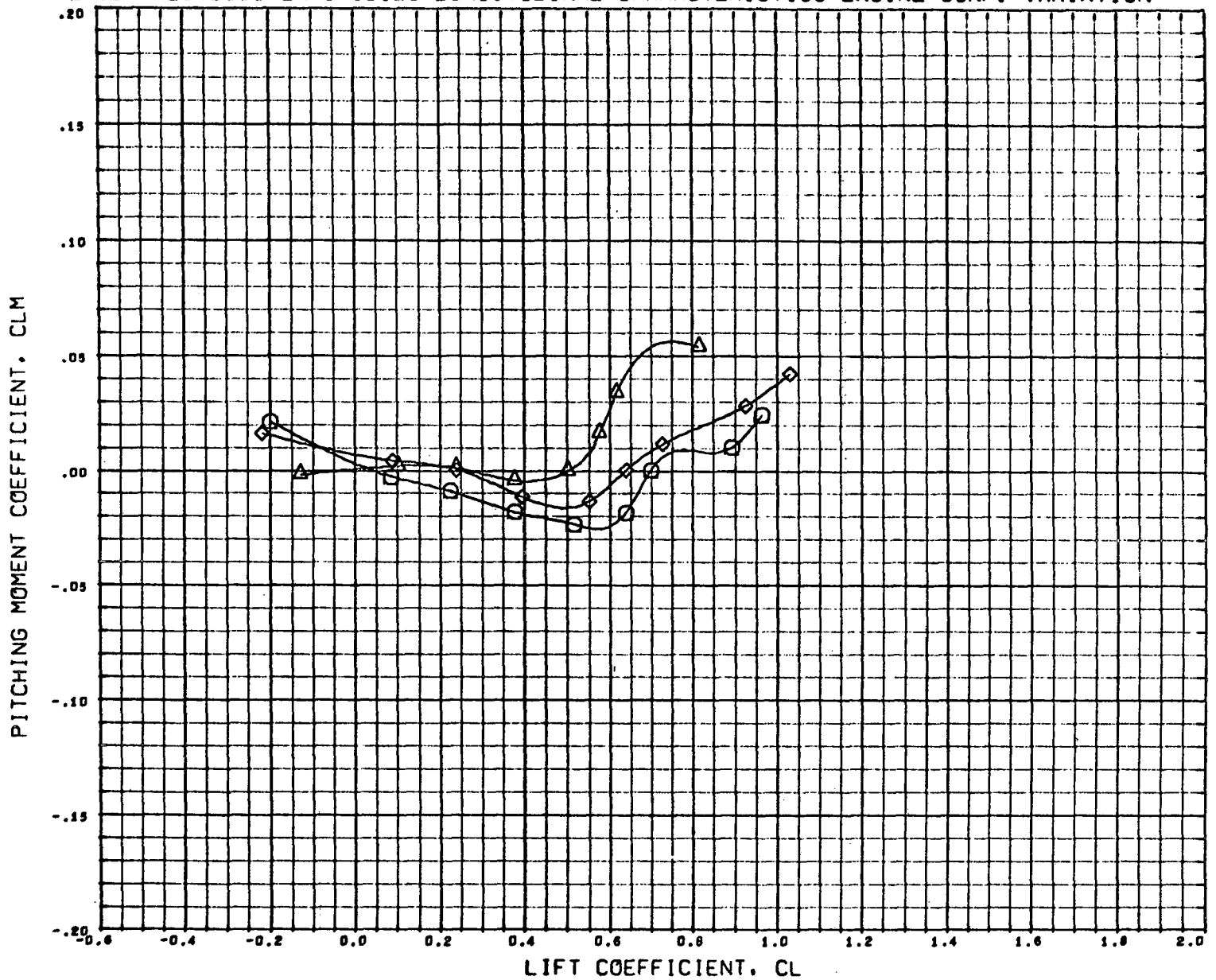
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(R3200)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(R3102)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF	3.4530 FEET
(DN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.701

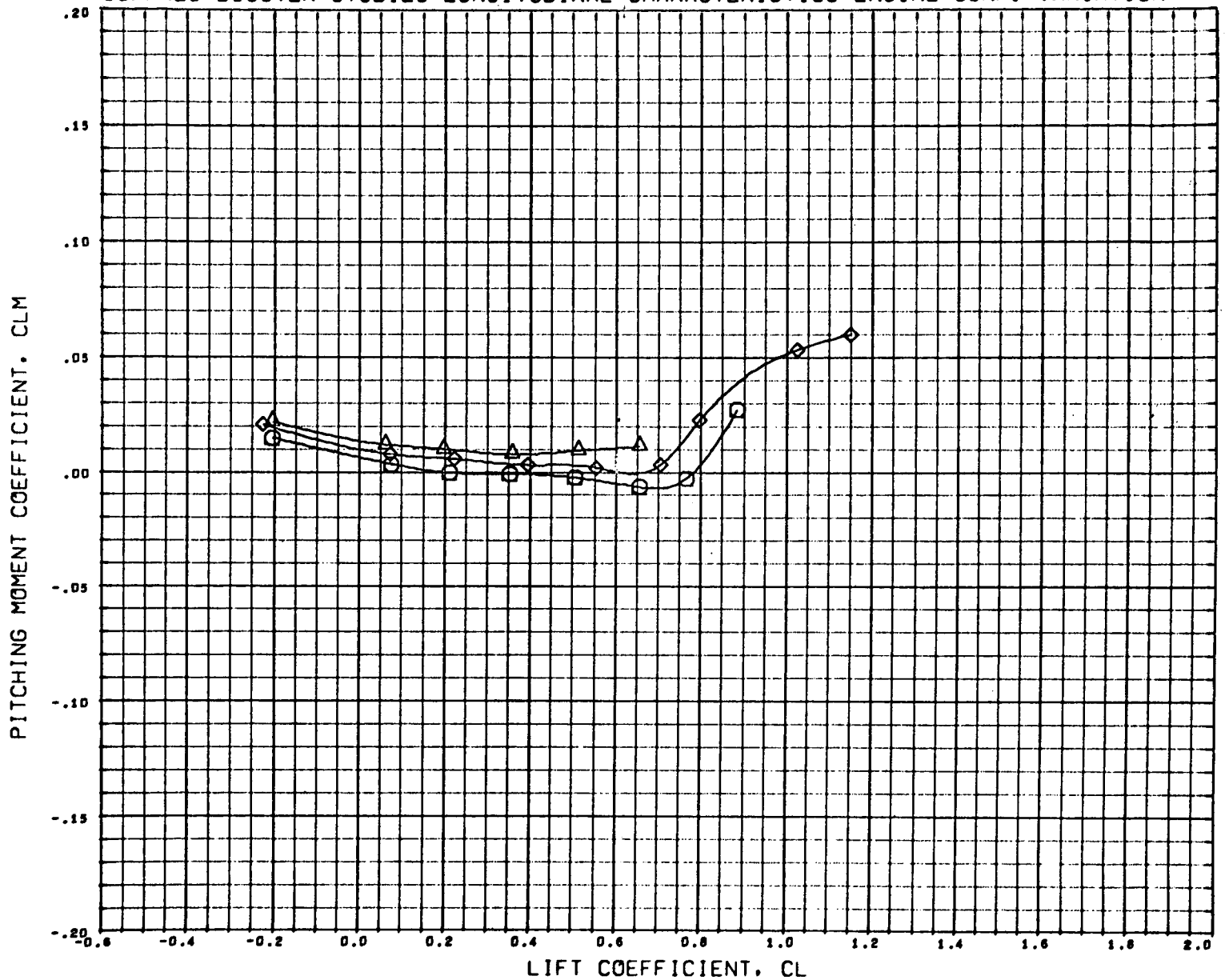
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3200)	NSRDC-3210, NSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(RN3182)	NSRDC-3210, NSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF	3.4530 FEET
(DN3001)	NSRDC-3210, NSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.901

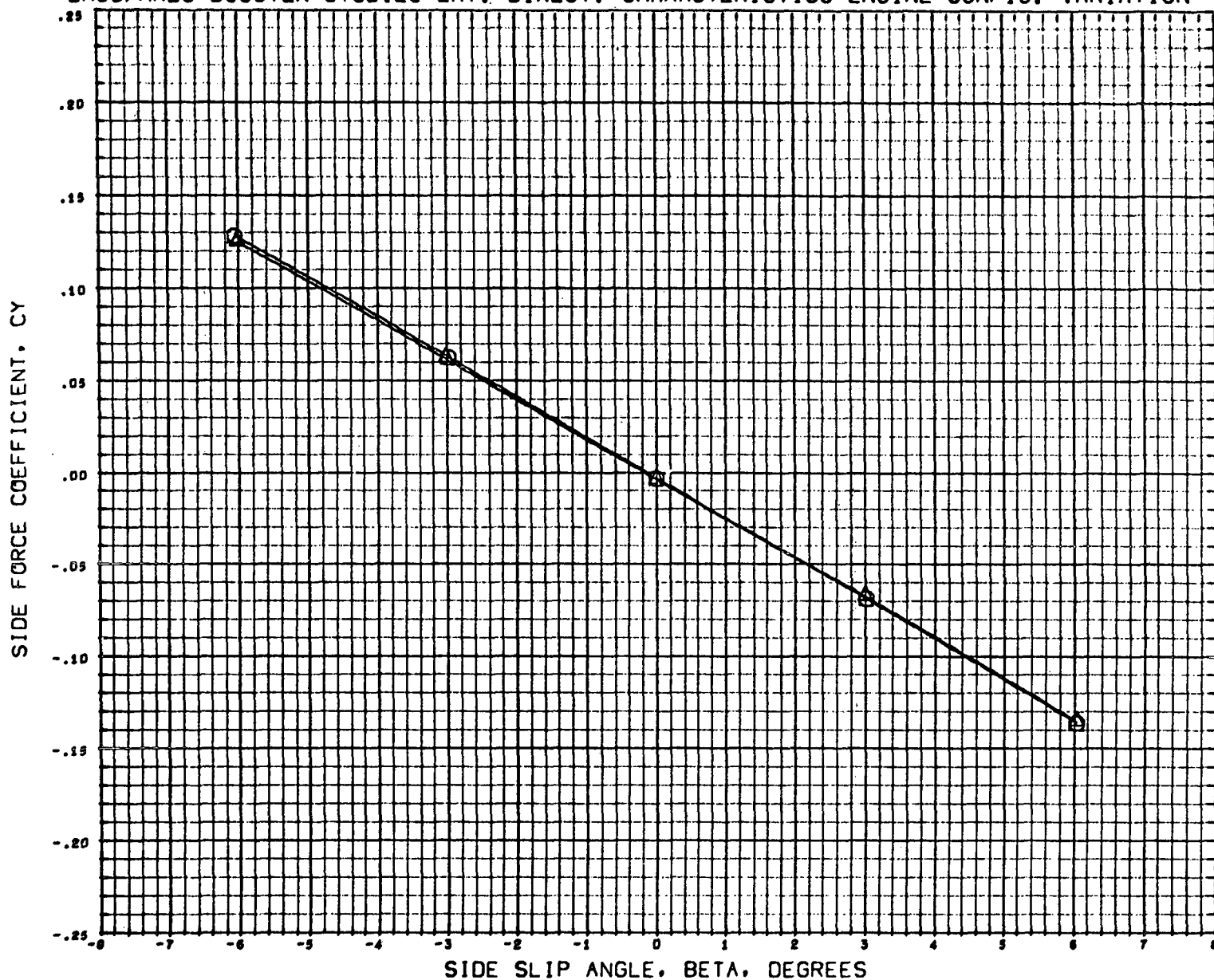
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-ENGINE CONF. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	CANARD	REFERENCE INFORMATION	
(RN3200)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3182)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF	3.4530 FEET
(DN3001)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 1.004

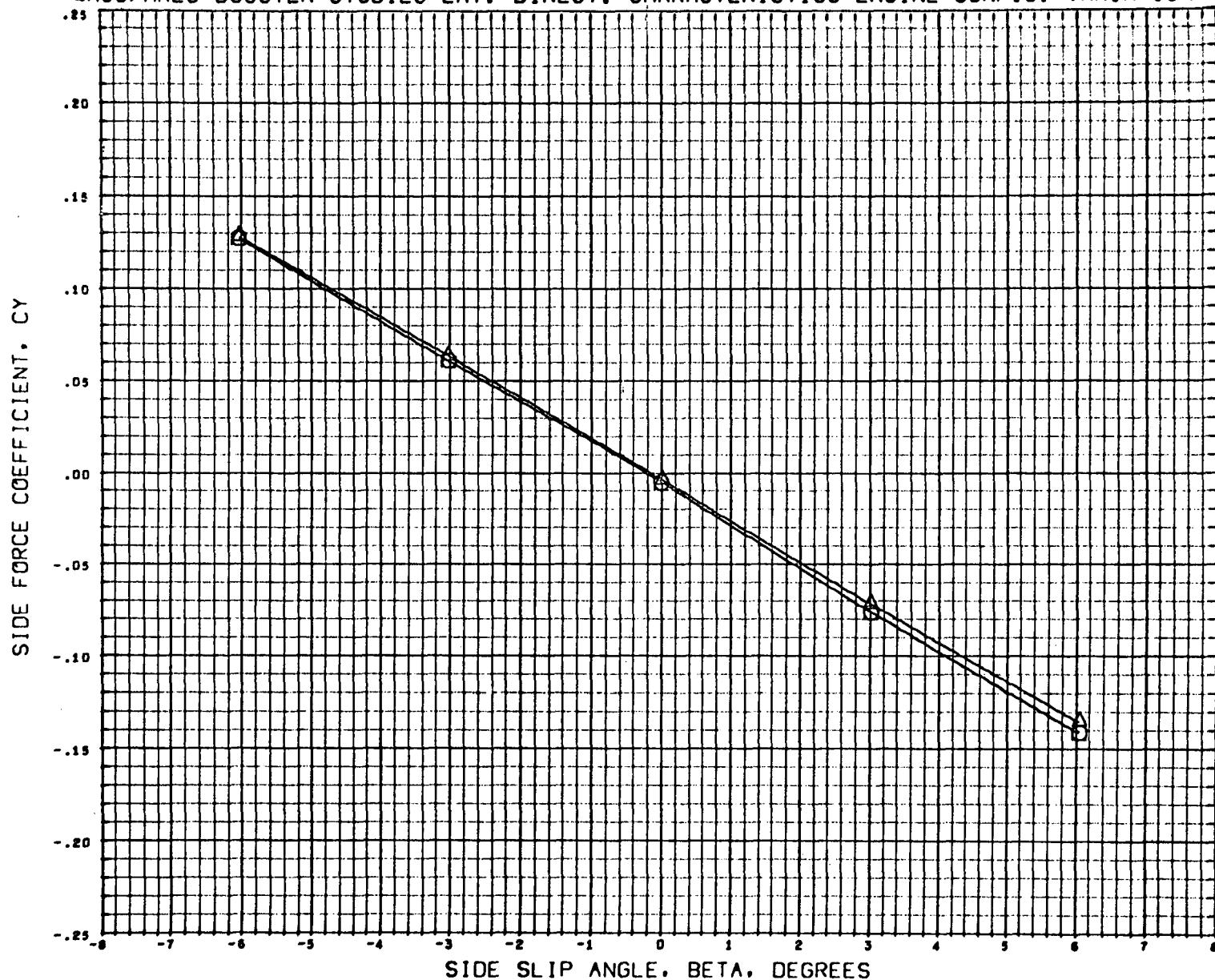
LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS-ENGINE CONFIG. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(JN3193)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V162	0.000	0.000	0.000	0.000	SREF	1.3550 89.FT.
(JN3183)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V164	0.000	0.000	0.000	0.000	LREF	3.4530 FEET
(KN3002)	DATA NOT AVAILABLE FOR ALL CONDITIONS	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.375

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS-ENGINE CONFIG. VARIATION

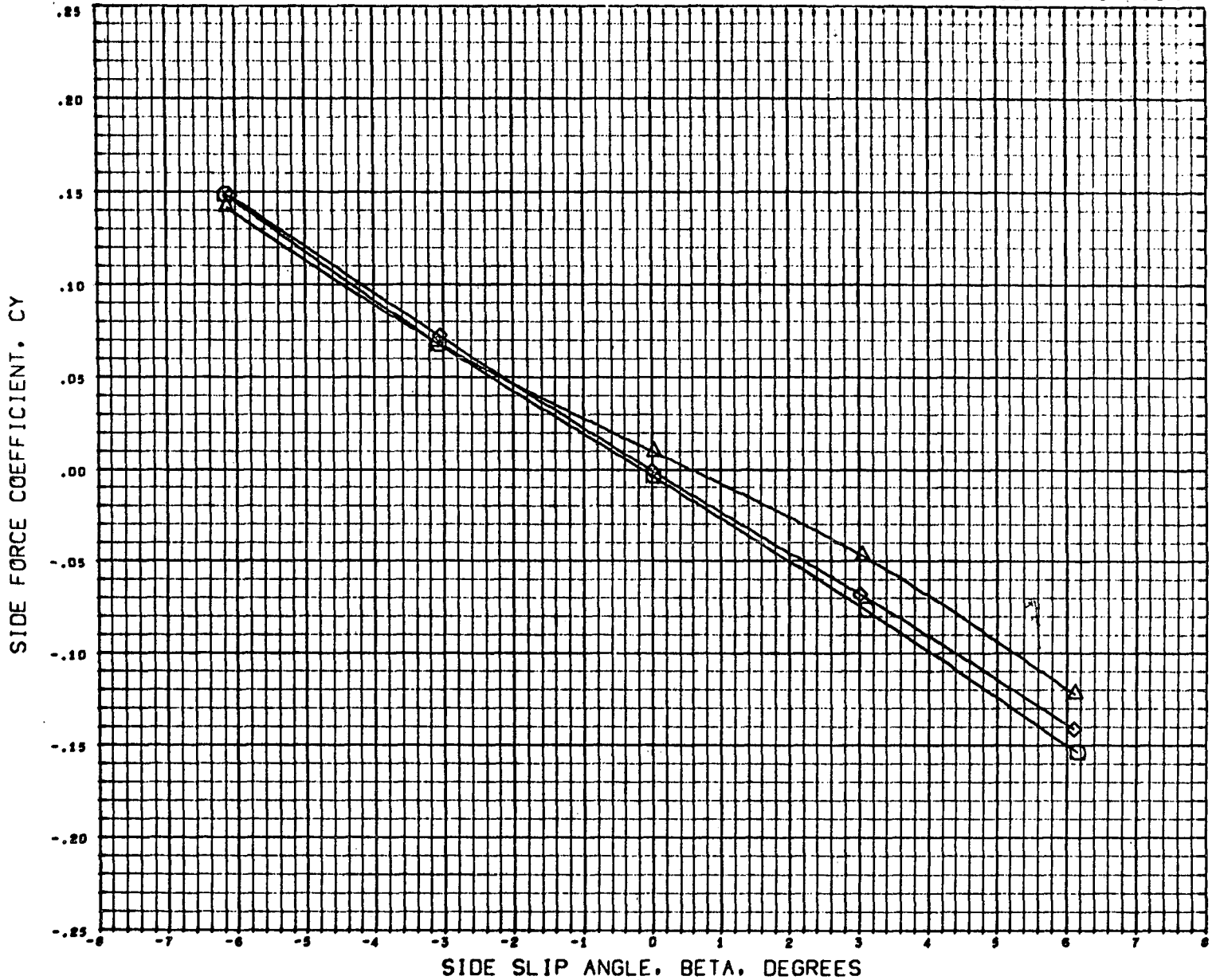


DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(JN3193)	NSRDC-3210, NSFC/LMSC BOOSTER B1C2F2W1V1G2
(JN3183)	NSRDC-3210, NSFC/LMSC BOOSTER B1C2F2W1V1G4
(KN3002)	DATA NOT AVAILABLE FOR ALL CONDITIONS

ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
0.000	0.000	0.000	0.000	SREF 1.3550 SQ. FT.
0.000	0.000	0.000	0.000	LREF 3.4530 FEET
0.000	0.000	0.000	0.000	BREF 3.4530 FEET
				XMRP 2.9950 FEET
				YMRP 0.0000 FEET
				ZMRP 0.0187 FEET
				SCALE 0.0150 SCALE

MACH 0.505

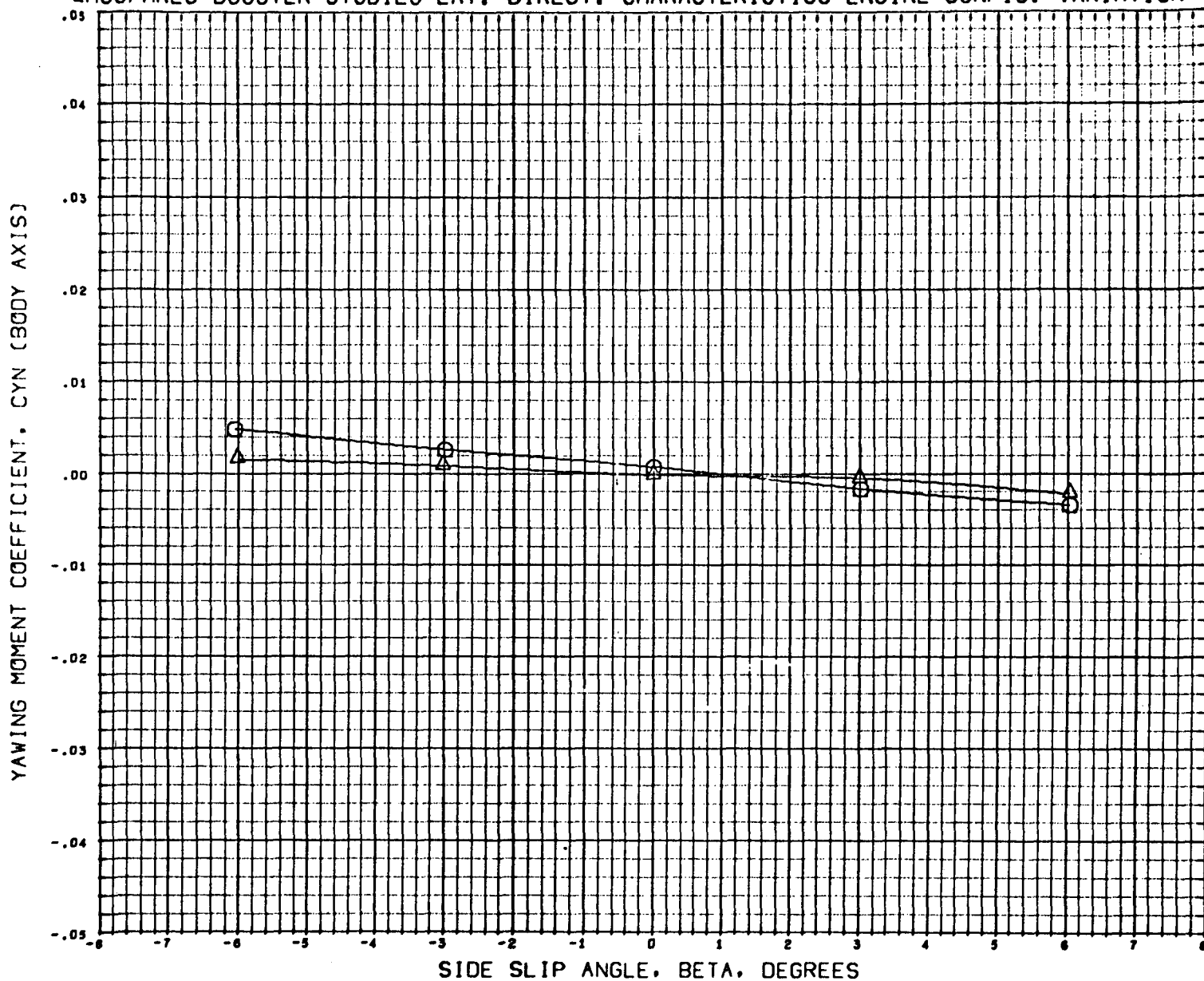
LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS-ENGINE CONFIG. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(JN3193)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(JN3183)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF	3.4530 FEET
(KN3002)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.9950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.096

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS-ENGINE CONFIG. VARIATION

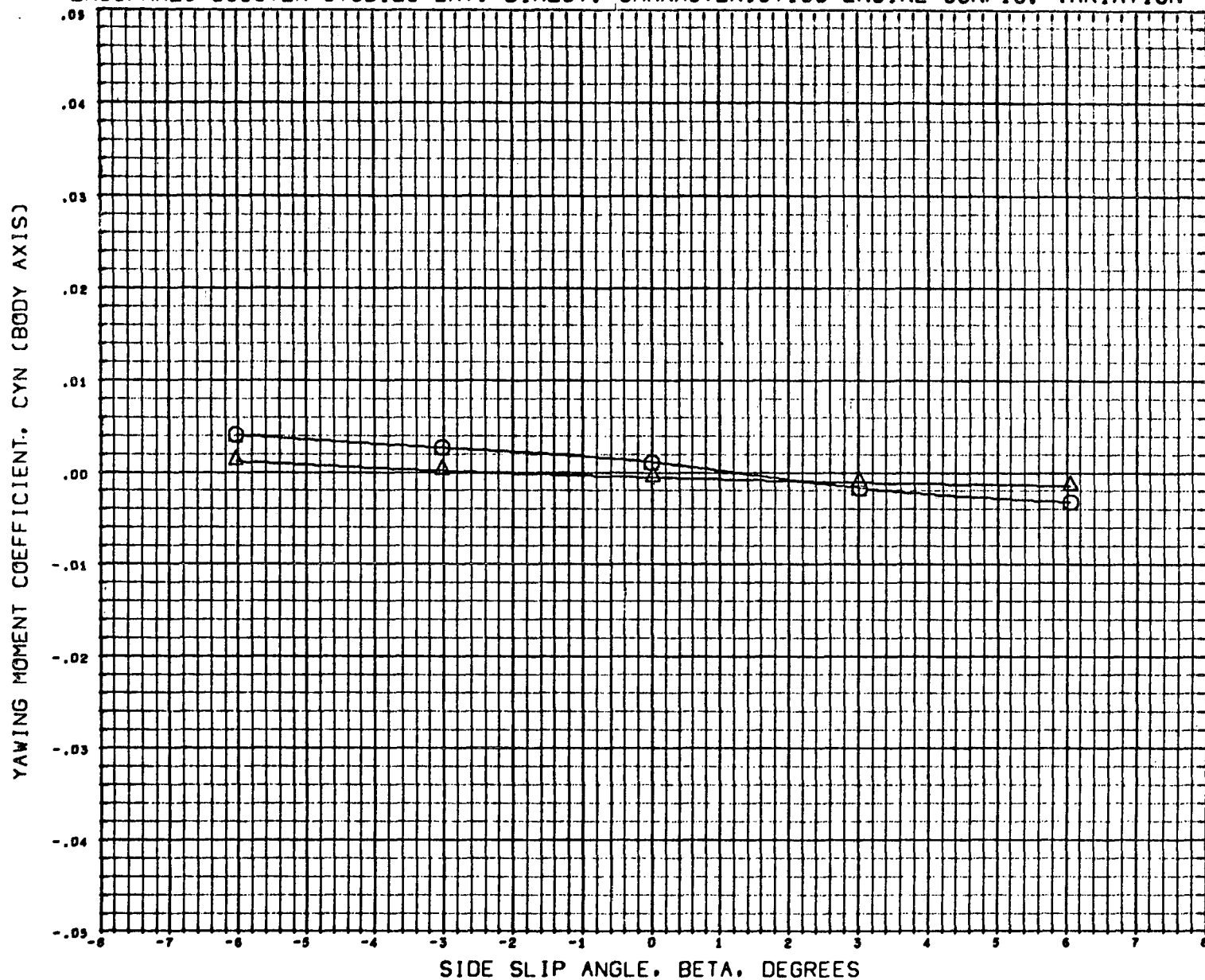


DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(JN3193)	NSRDC-3210, NSFC/LMSC BOOSTER B1C2F2W1V162
(JN3183)	NSRDC-3210, NSFC/LMSC BOOSTER B1C2F2W1V164
(KN3002)	DATA NOT AVAILABLE FOR ALL CONDITIONS

ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
0.000	0.000	0.000	0.000	SREF 1.3550 SQ.FT.
0.000	0.000	0.000	0.000	LREF 3.4530 FEET
0.000	0.000	0.000	0.000	BREF 3.4530 FEET
				XMRP 2.5950 FEET
				YMRP 0.0000 FEET
				ZMRP 0.0187 FEET
				SCALE 0.0150 SCALE

MACH 0.375

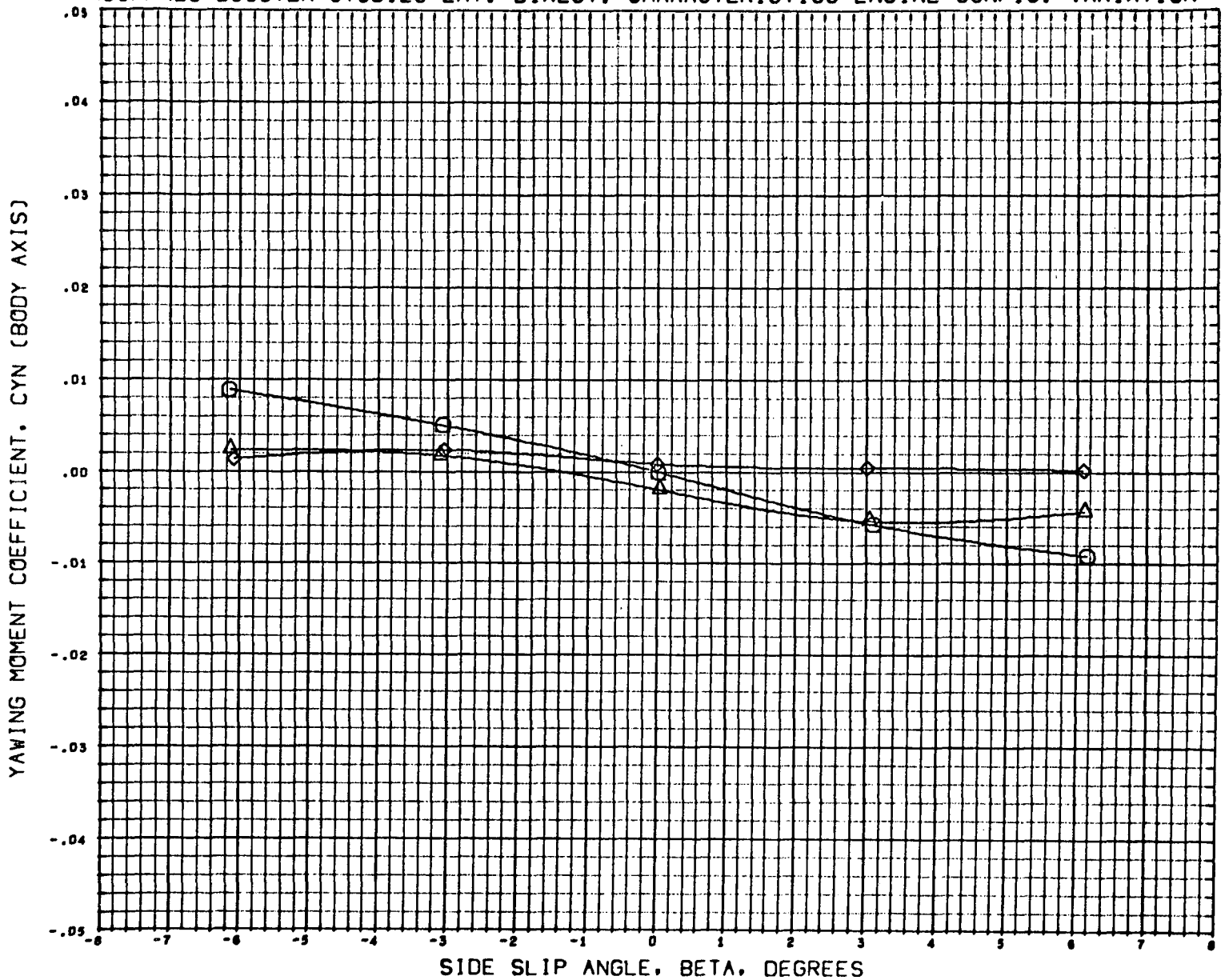
LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS-ENGINE CONFIG. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(JN3193)	NSRDC-3210, NSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF	1.3550 80. FT.
(JN3183)	NSRDC-3210, NSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF	3.4530 FEET
(KN3002)	DATA NOT AVAILABLE FOR ALL CONDITIONS	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.3950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.505

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS-ENGINE CONFIG. VARIATION



DATA SET SYMBOL
(JN3193) ○
(JN3183) △
(KN3002) ◇

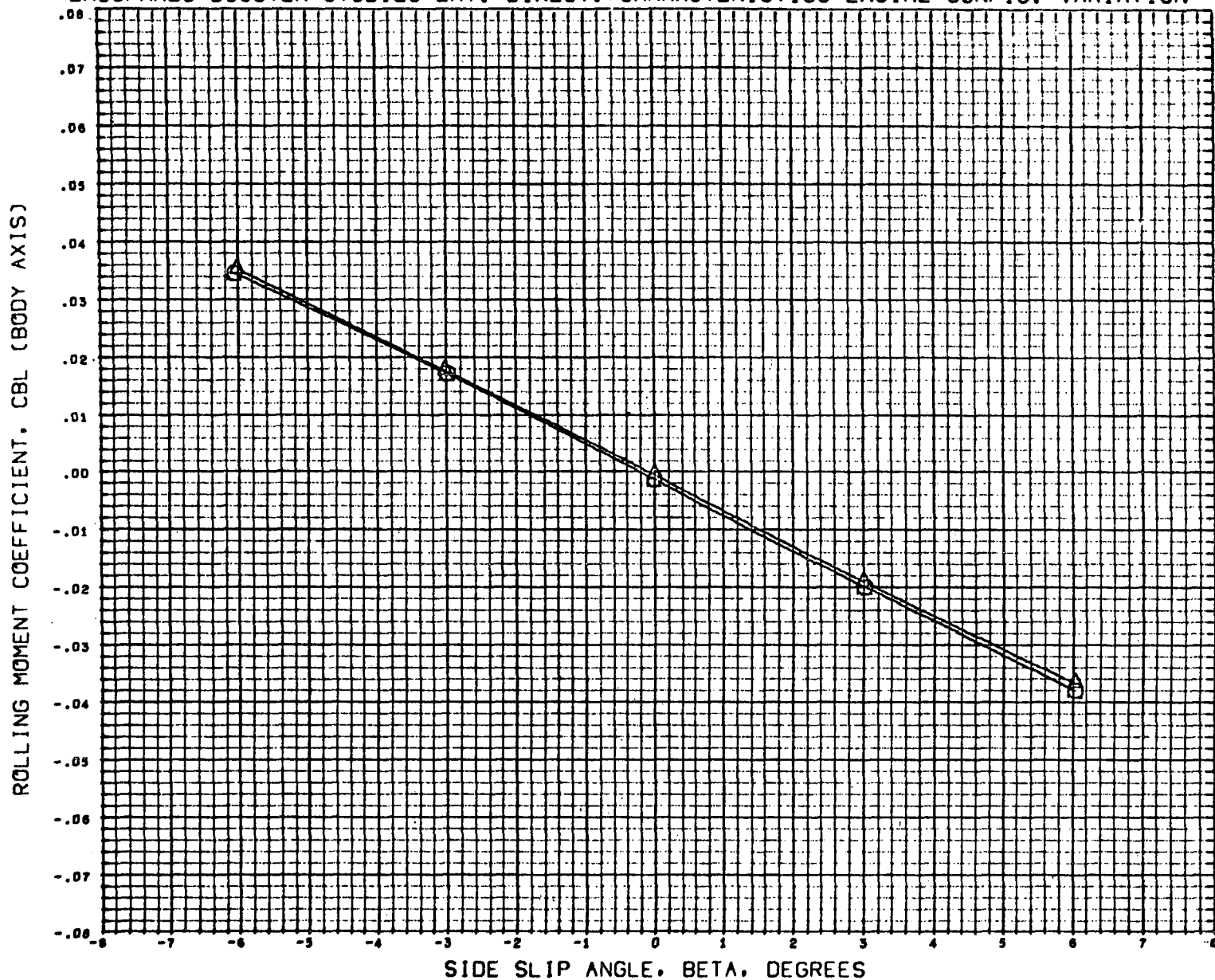
CONFIGURATION DESCRIPTION
NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V162
NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V164
NSRDC-3210, MSFC/LMSC BOOSTER B1C2F2W1V1

ALPHA	RUDDER	CANARD	ELEVTR
0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000

REFERENCE INFORMATION		
SREF	1.3550	SQ. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0187	FEET
SCALE	0.0150	SCALE

MACH 0.096

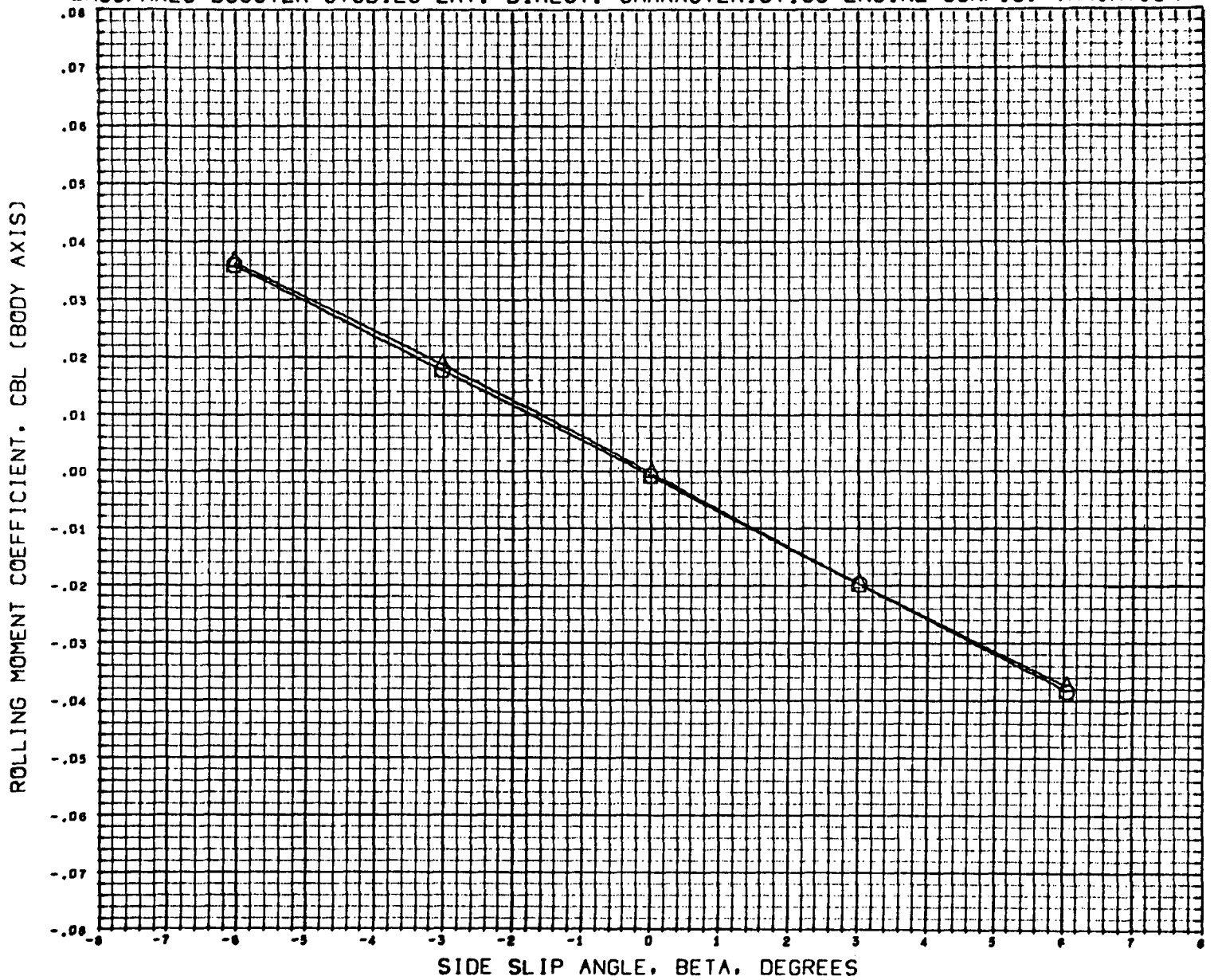
LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS-ENGINE CONFIG. VARIATION



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(JN3193)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF	1.3550 80.FT.
(JN3183)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF	3.4530 FEET
(KN3002)	DATA NOT AVAILABLE FOR ALL CONDITIONS	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.375

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS-ENGINE CONFIG. VARIATION

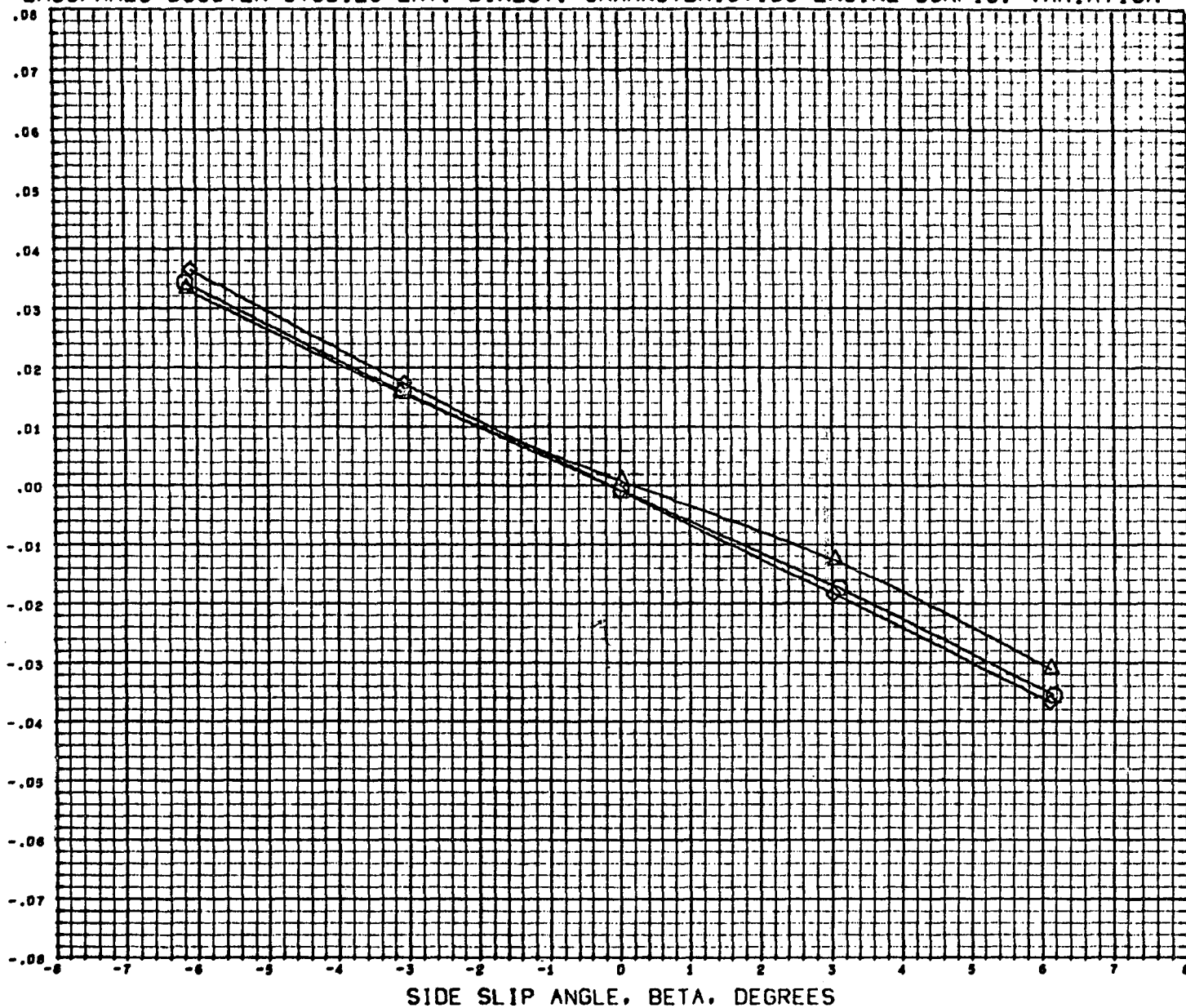


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(JN3193)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF	1.3550 30.FT.
(JN3183)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF	3.4330 FEET
(KN3002)	DATA NOT AVAILABLE FOR ALL CONDITIONS	0.000	0.000	0.000	0.000	BREF	3.4330 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.505

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS-ENGINE CONFIG. VARIATION

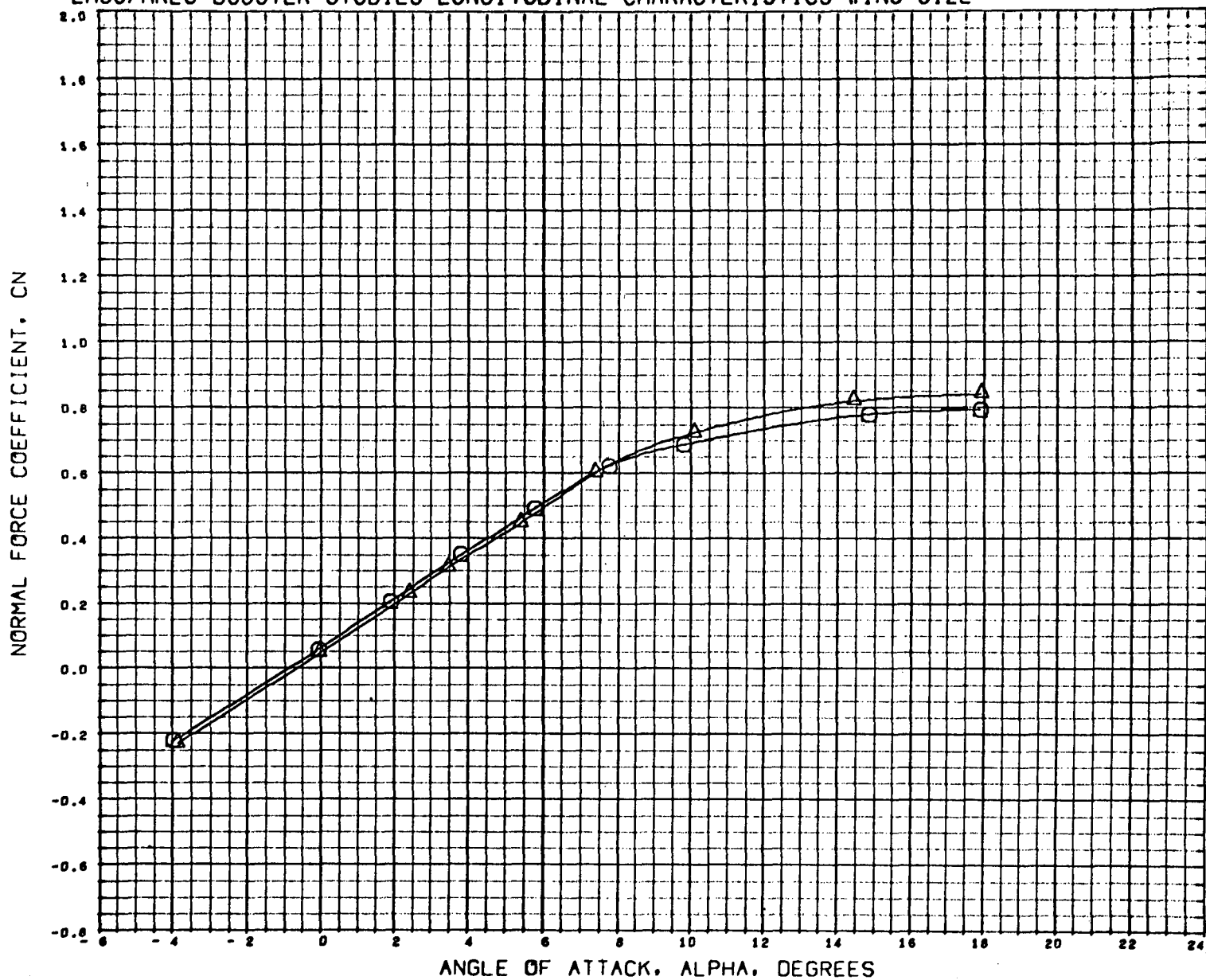
ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(JN3193)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G2	0.000	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(JN3183)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1G4	0.000	0.000	0.000	0.000	LREF	3.4530 FEET
(KN3002)	NSRDC-3210,MSFC/LMSC BOOSTER B1C2F2W1V1	0.000	0.000	0.000	0.000	BREF	3.4530 FEET
						XMRP	2.5950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.896

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



DATA SET SYMBOL
(RN3065)
(RN3061)



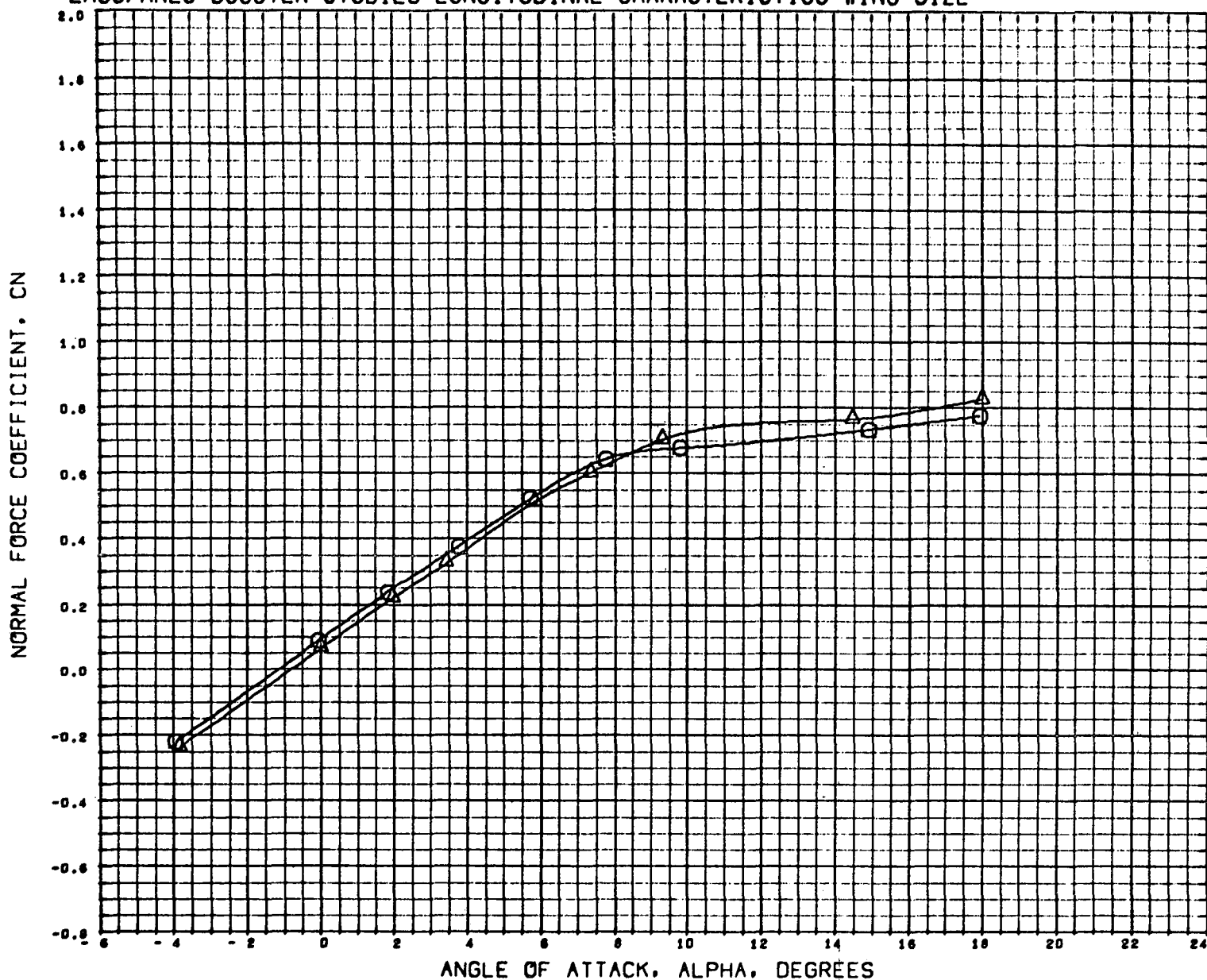
CONFIGURATION DESCRIPTION
NSRDC-3210, MSFC/LMSC BOOSTER B1V1W1
NSRDC-3210, MSFC/LMSC BOOSTER B1V2W1

ELEVTR	AILRON	RUDDER
0.000	0.000	0.000
0.000	0.000	0.000

REFERENCE INFORMATION		
SREF	1.3550	SQ. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMHP	2.5950	FEET
YMHP	0.0000	FEET
ZMHP	0.0187	FEET
SCALE	0.0150	SCALE

MACH 0.704

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



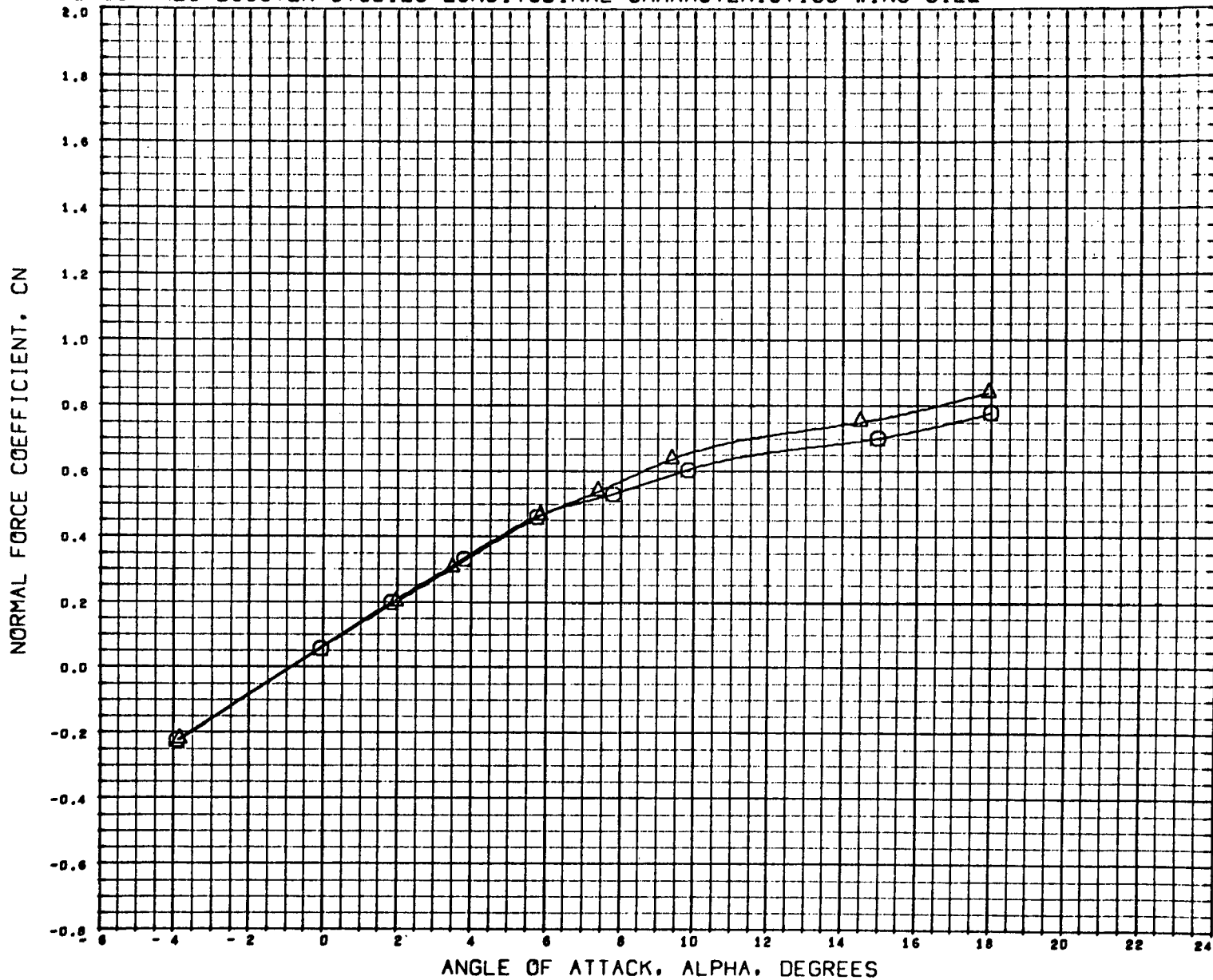
DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (RN3065) Q NSRDC-3210, MSFC/LMSC BOOSTER B1V1W1
 (RN3061) A NSRDC-3210, MSFC/LMSC BOOSTER B1V2W1

ELEVTR AILRON RUDDER
 0.000 0.000 0.000
 0.000 0.000 0.000

REFERENCE INFORMATION
 SREF 1.3550 80. FT.
 LREF 3.4530 FEET
 BREF 3.4530 FEET
 XMRP 2.5950 FEET
 YMRP 0.0000 FEET
 ZMRP 0.0187 FEET
 SCALE 0.0150 SCALE

MACH 0.800

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



DATA SET SYMBOL
(RN3065) \bigcirc
(RN3061) \triangle

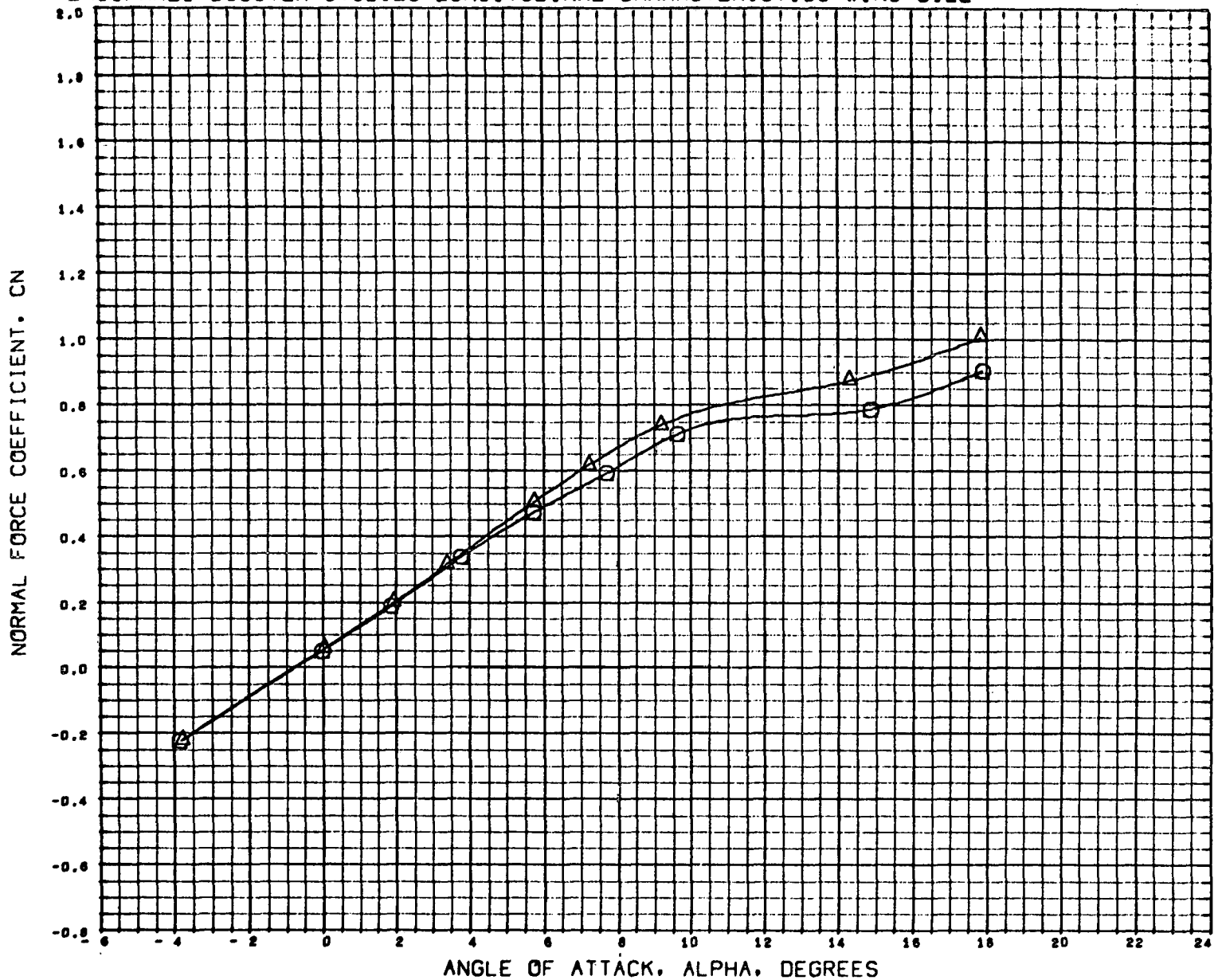
CONFIGURATION DESCRIPTION
NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1
NSRDC-3210,MSFC/LMSC BOOSTER B1V2W1



ELEVTR	AILRON	RUDDER
0.000	0.000	0.000
0.000	0.000	0.000

REFERENCE INFORMATION		
SREF	1.3550	80.FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.3950	FEET
YMRP	0.0000	FEET
ZMRP	0.0187	FEET
SCALE	0.0150	SCALE

MACH 0.902

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



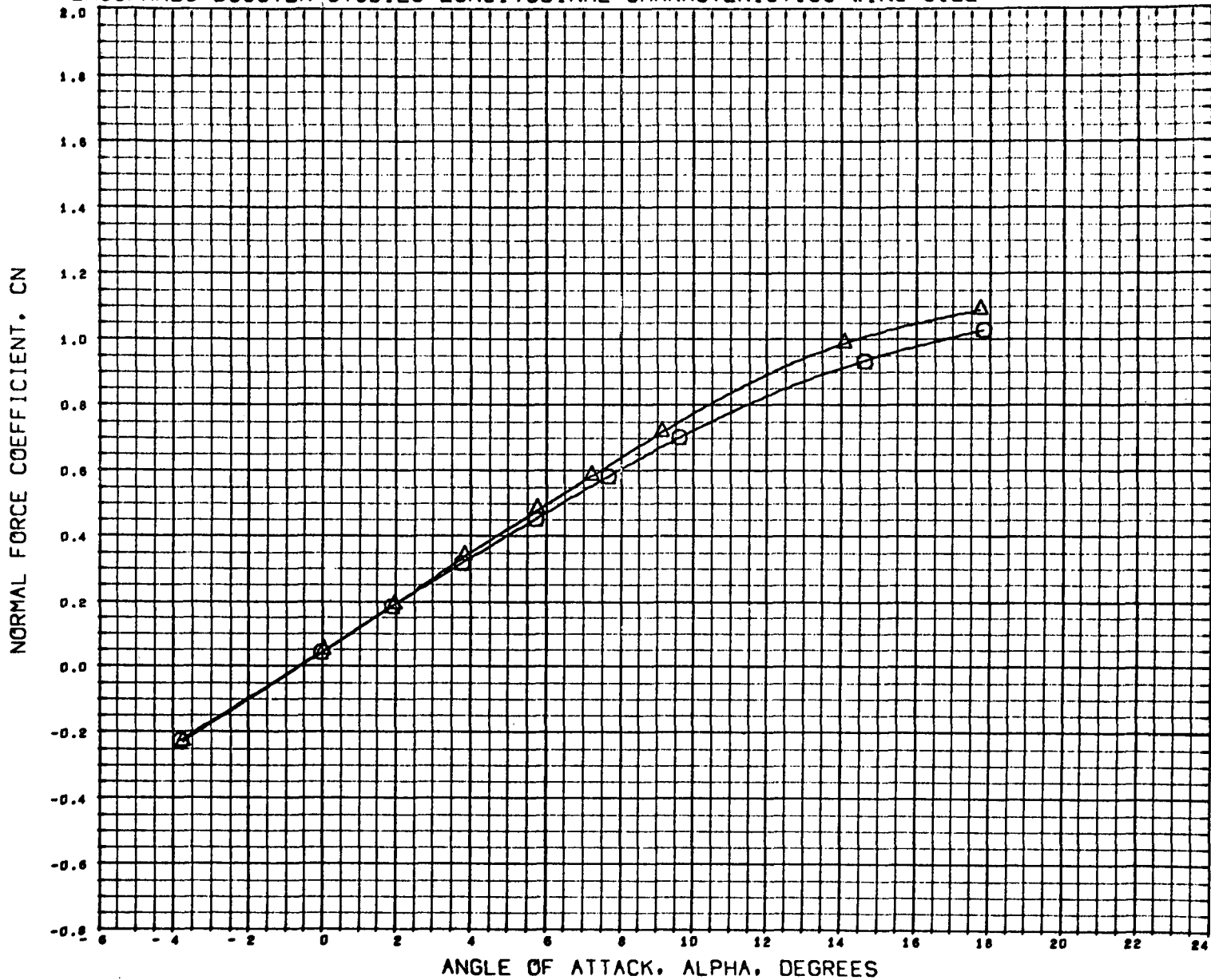
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(RN3065) 	NSRDC-3210, MSFC/LMSC BOOSTER B1V1W1
(RN3061) 	NSRDC-3210, MSFC/LMSC BOOSTER B1V2W1



ELEVTR	AILRON	RUDDER
0.000	0.000	0.000
0.000	0.000	

REFERENCE INFORMATION		
SREF	1.3550	sq. ft.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0187	FEET
SCALE	0.0150	SCALE

MACH 1.002

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



DATA SET SYMBOL
(RN3065) 
(RN3061) 

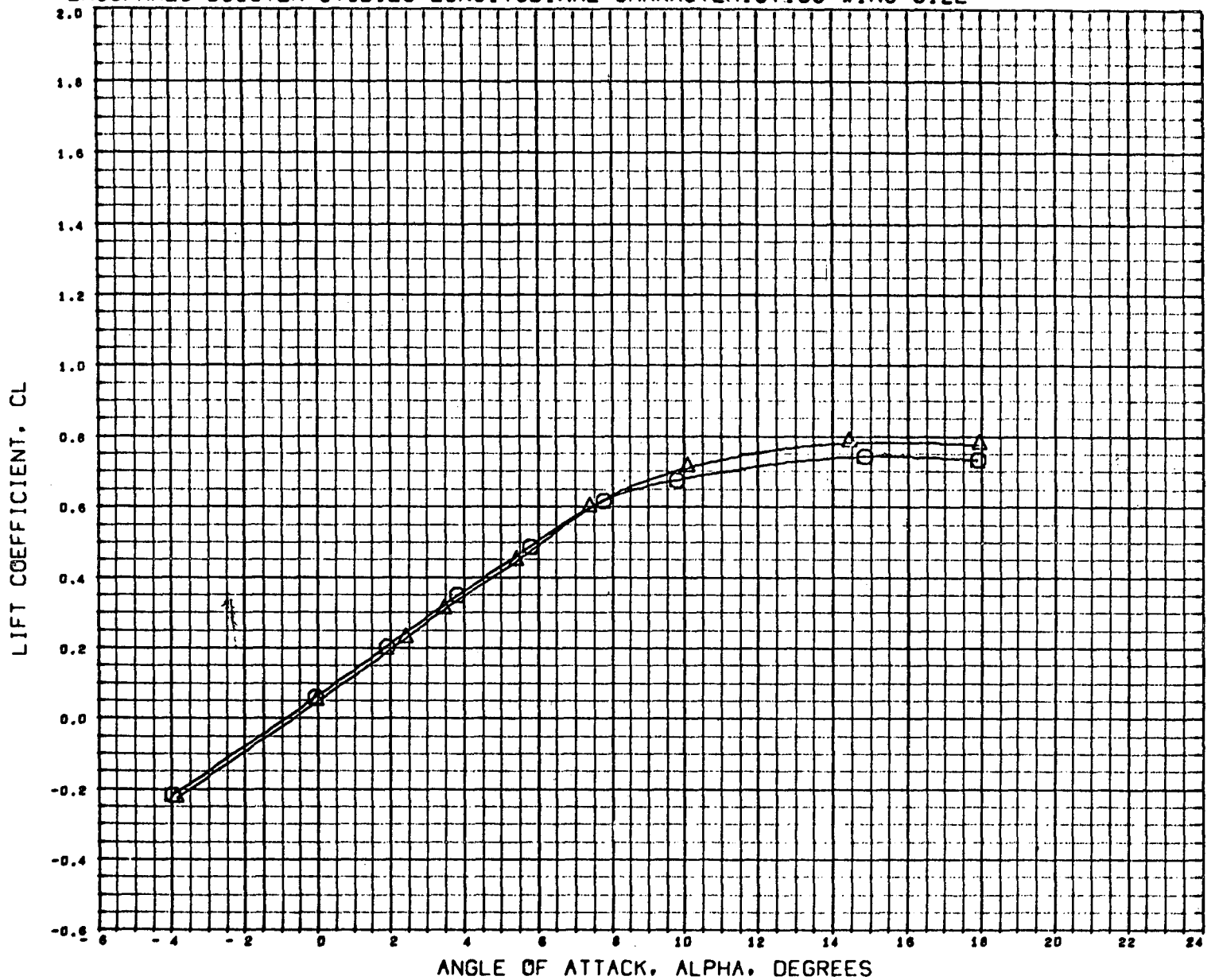
CONFIGURATION DESCRIPTION
NSRDC-3210, NSFC/LMSC BOOSTER B1V1W1
NSRDC-3210, NSFC/LMSC BOOSTER B1V2W1



ELEVTR	AILRON	RUDDER
0.000	0.000	0.000
0.000	0.000	0.000

REFERENCE INFORMATION		
SREF	1.3550	80. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.9950	FEET
YMRP	0.0000	FEET
ZMRP	0.0187	FEET
SCALE	0.0150	SCALE

MACH 1.125

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



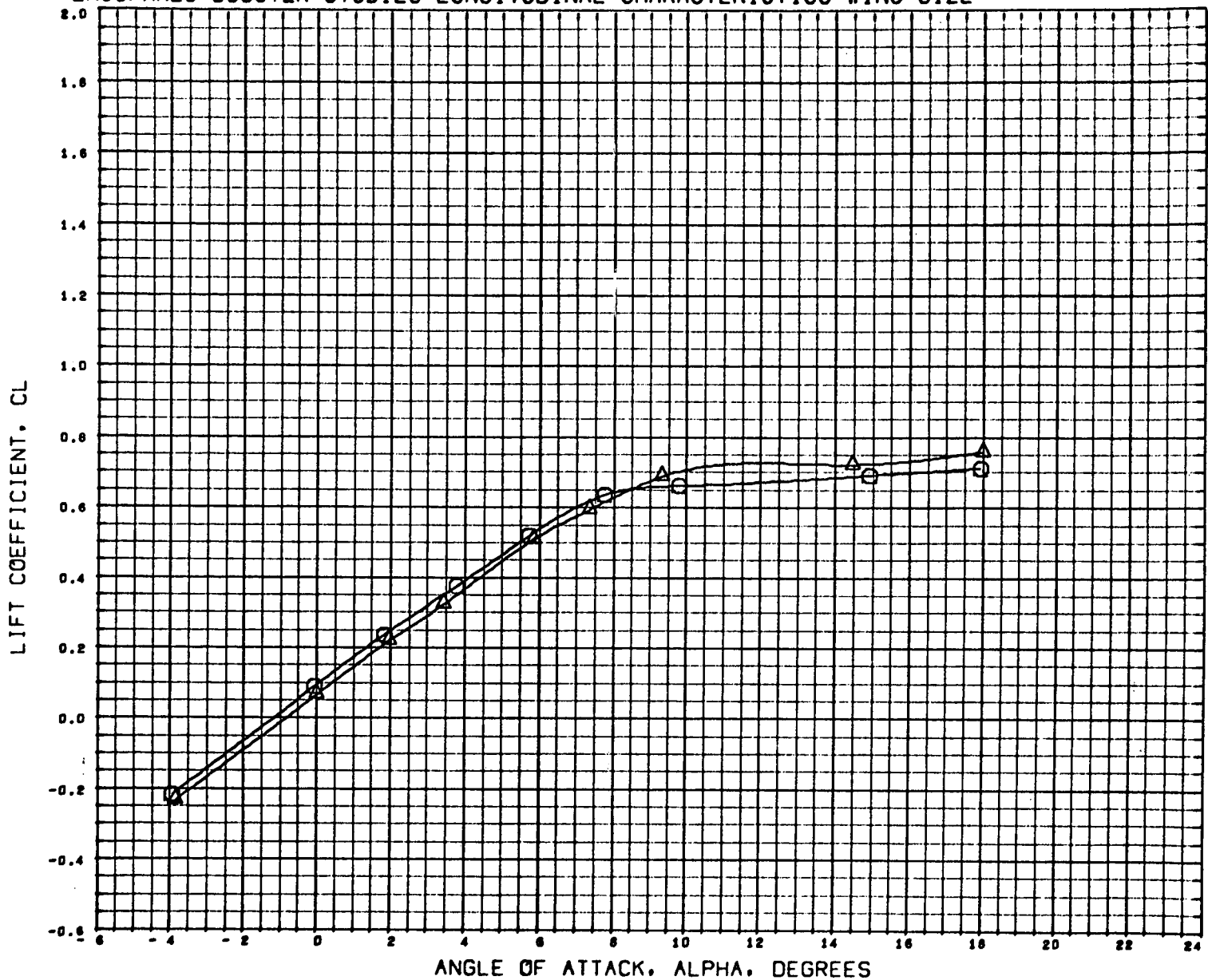
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(RN3061) 	NSRDC-3210, NSFC/LMSC BOOSTER B1V1W1
(RN3061) 	NSRDC-3210, NSFC/LMSC BOOSTER B1V2W1

ELEVTR	AILRON	RUDDER
0.000	0.000	0.000
0.000	0.000	0.000

REFERENCE INFORMATION		
SREF	1.3550	50.FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0187	FEET
SCALE	0.0150	SCALE

MACH 0.704

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



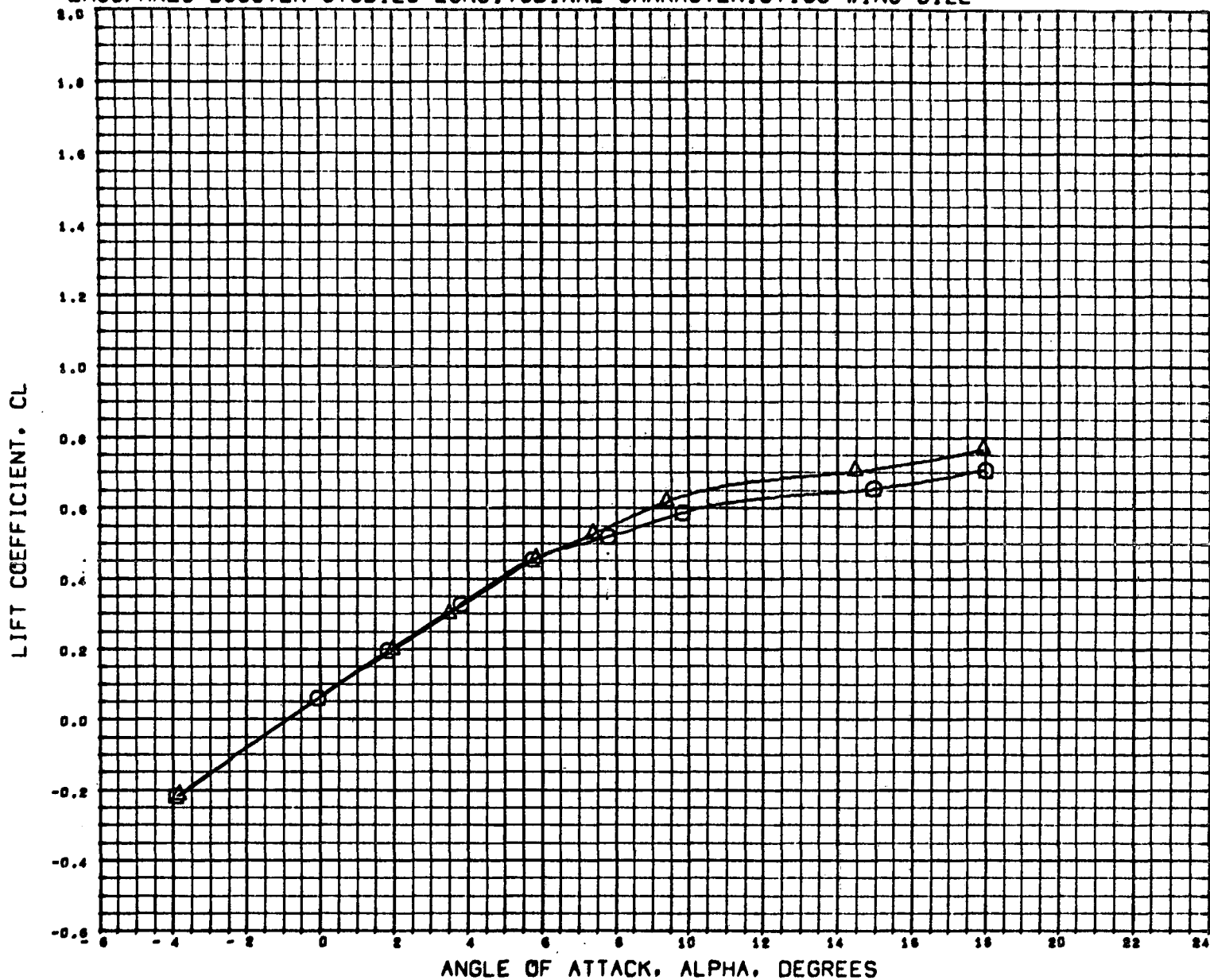
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(RNS065)	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1
(RNS061)	NSRDC-3210,MSFC/LMSC BOOSTER B1V2W1

ELEVTR	AILRON	RUDDER
0.000	0.000	0.000
0.000	0.000	0.000

REFERENCE INFORMATION	
SREF	1.3550 SQ.FT.
LREF	3.4530 FEET
BREF	3.4530 FEET
XMRP	2.5950 FEET
YMRP	0.0000 FEET
ZMRP	0.0167 FEET
SCALE	0.0150 SCALE

MACH 0.000

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



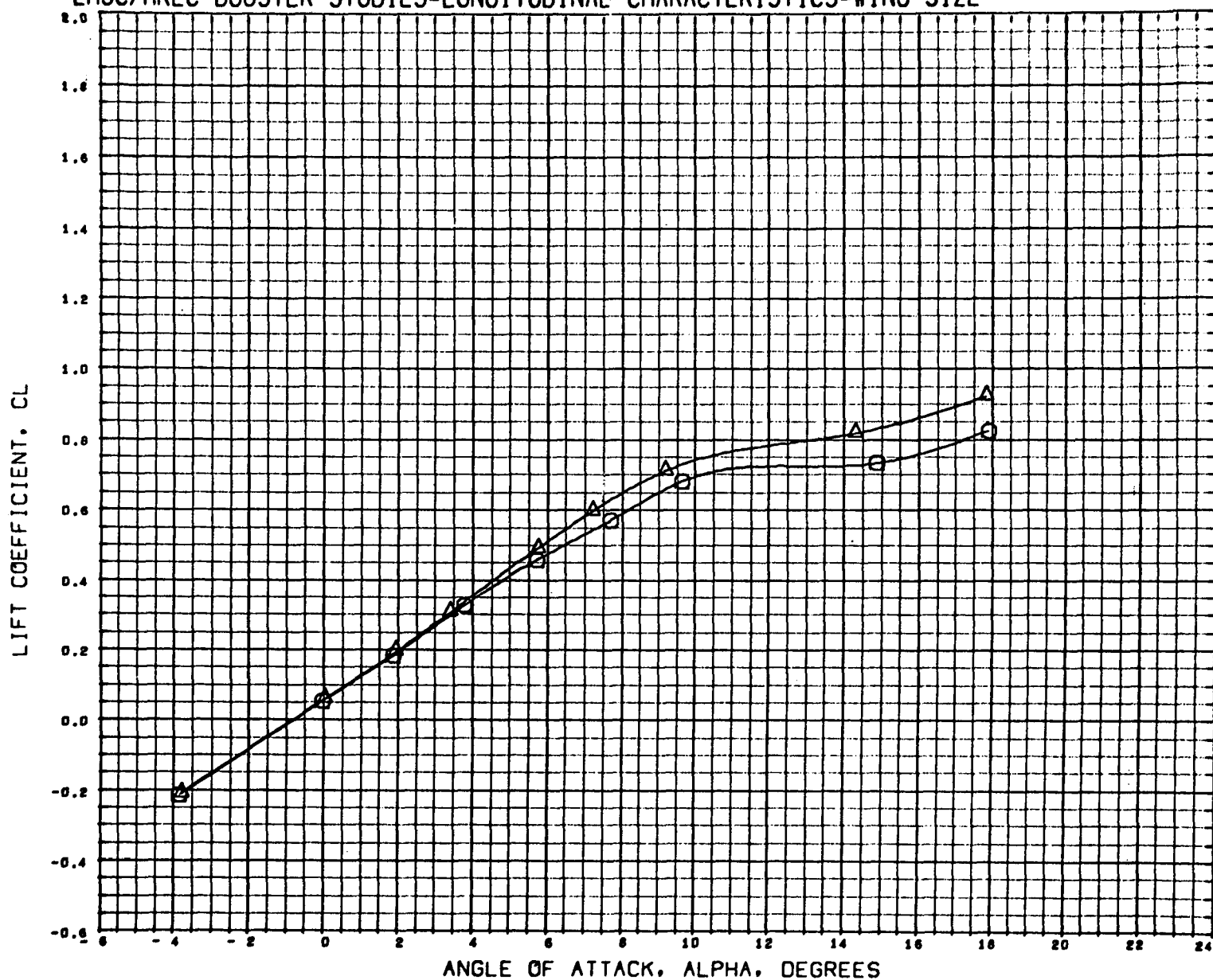
DATA SET SYMBOL CONFIGURATION DESCRIPTION
(RN3065) Q NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1
(RN3061) Δ NSRDC-3210,MSFC/LMSC BOOSTER B1V2W1

ELEVTR AILRON RUDDER
0.000 0.000 0.000
0.000 0.000 0.000

REFERENCE INFORMATION
SREF 1.3550 SQ.FT.
LREF 3.4930 FEET
BREF 3.4930 FEET
XMRP 2.5950 FEET
YMRP 0.0000 FEET
ZMRP 0.0187 FEET
SCALE 0.0150 SCALE

MACH 0.902

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



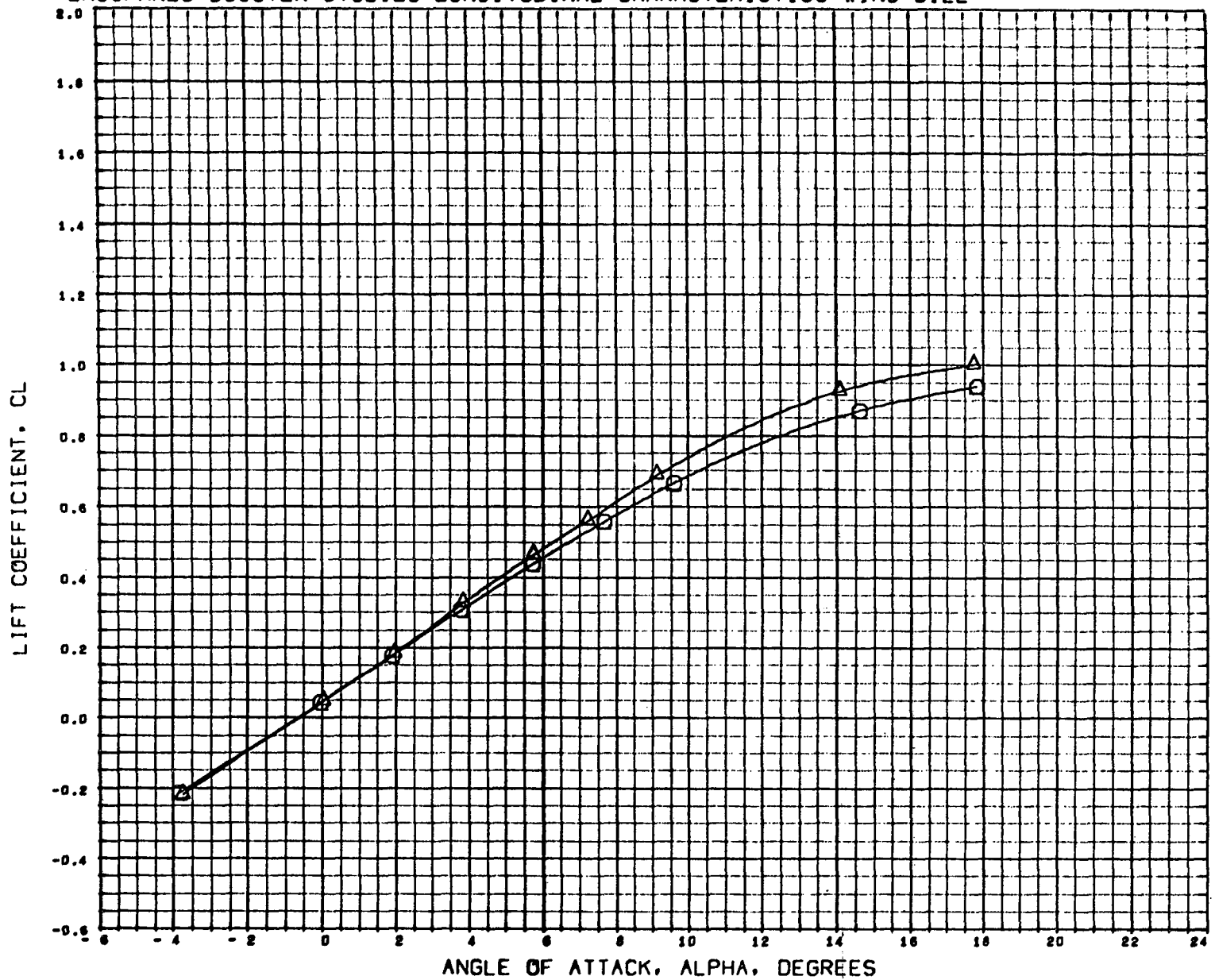
DATA SET SYMBOL (RN3065) (RN3061) CONFIGURATION DESCRIPTION NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1 NSRDC-3210,MSFC/LMSC BOOSTER B1V2W1

ELEVTR 0.000 0.000 0.000 AILRON 0.000 0.000 RUDDER 0.000

REFERENCE INFORMATION SREF 1.3350 SQ.FT. LREF 3.4330 FEET BREF 3.4330 FEET XMHP 2.5950 FEET YMHP 0.0000 FEET ZMHP 0.0167 FEET SCALE 0.0150 SCALE

MACH 1.002

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



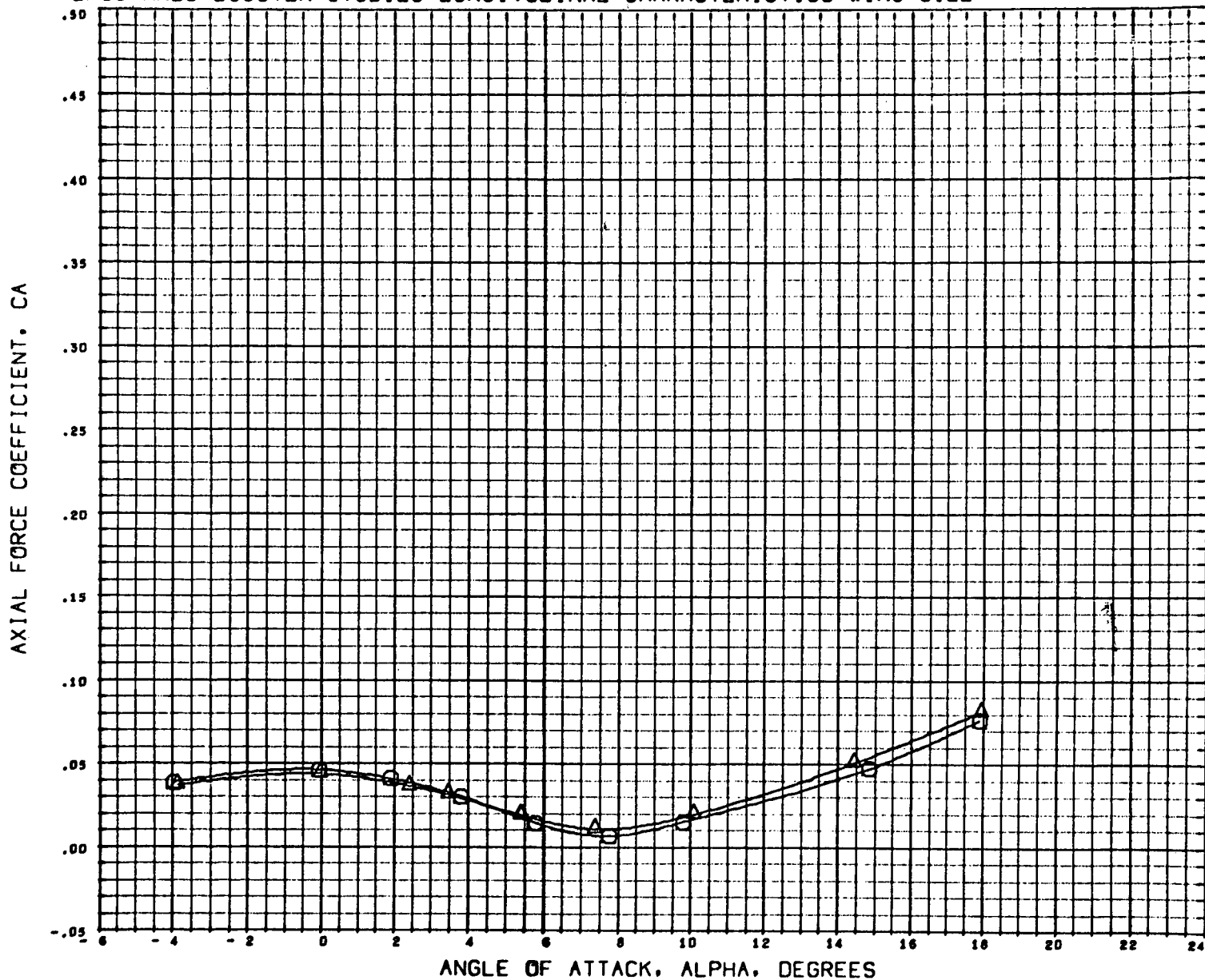
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(RN3065)	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1
(RN3061)	NSRDC-3210,MSFC/LMSC BOOSTER B1V2W1

ELEVTR	AILRON	RUDDER
0.000	0.000	0.000
0.000	0.000	0.000

REFERENCE INFORMATION		
SREF	1.3550	SQ.FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0187	FEET
SCALE	0.0150	SCALE

MACH 1.125

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



DATA SET SYMBOL
(RN3065)
(RN3061)



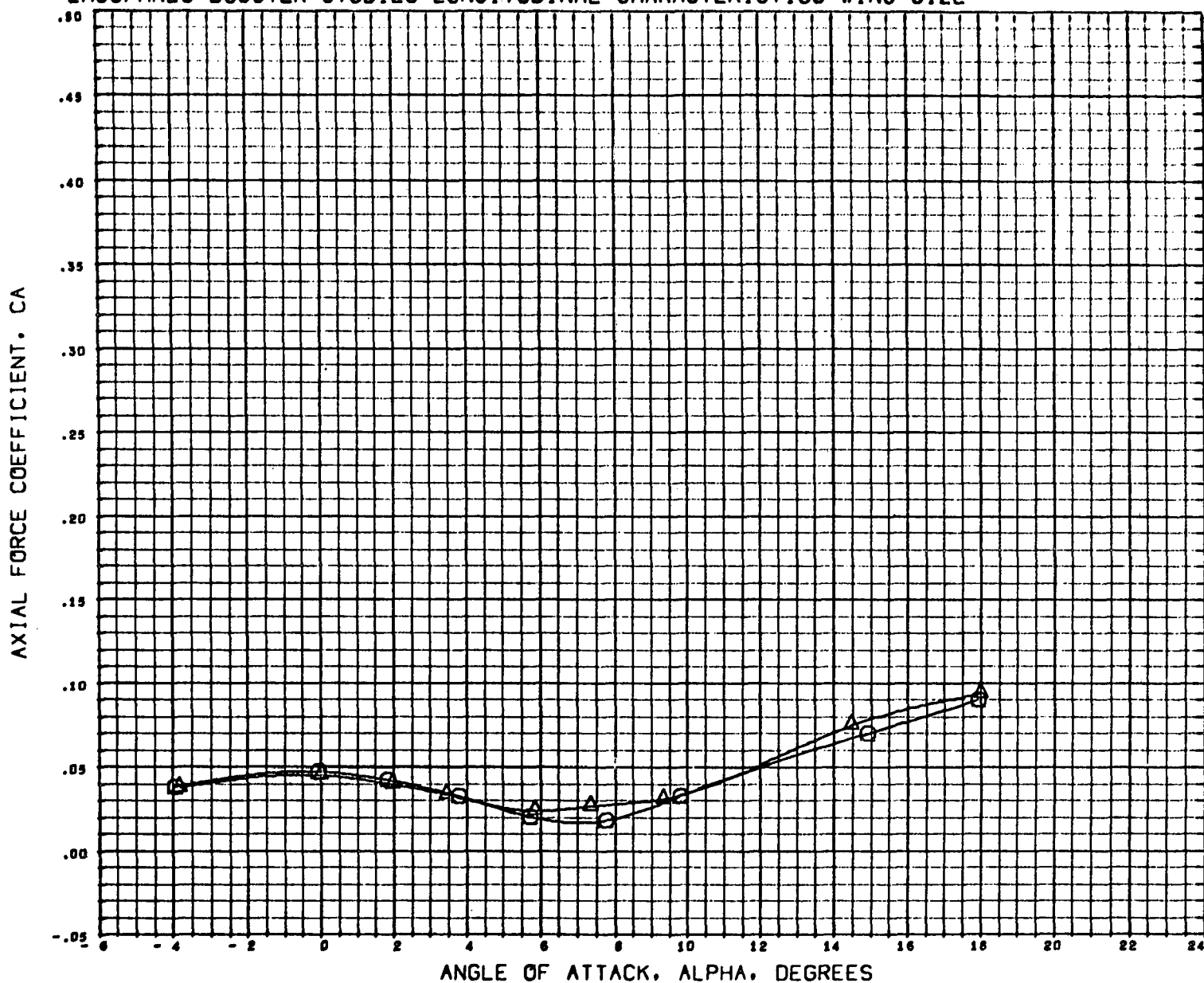
CONFIGURATION DESCRIPTION
NSRDC-3210, MSFC/LMSC BOOSTER B1V1W1
NSRDC-3210, MSFC/LMSC BOOSTER B1V2W1

ELEVTR	AILRON	RUDDER
0.000	0.000	0.000
0.000	0.000	

REFERENCE INFORMATION		
SREF	1.3350	30. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0187	FEET
SCALE	0.0150	SCALE

MACH 0.704

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



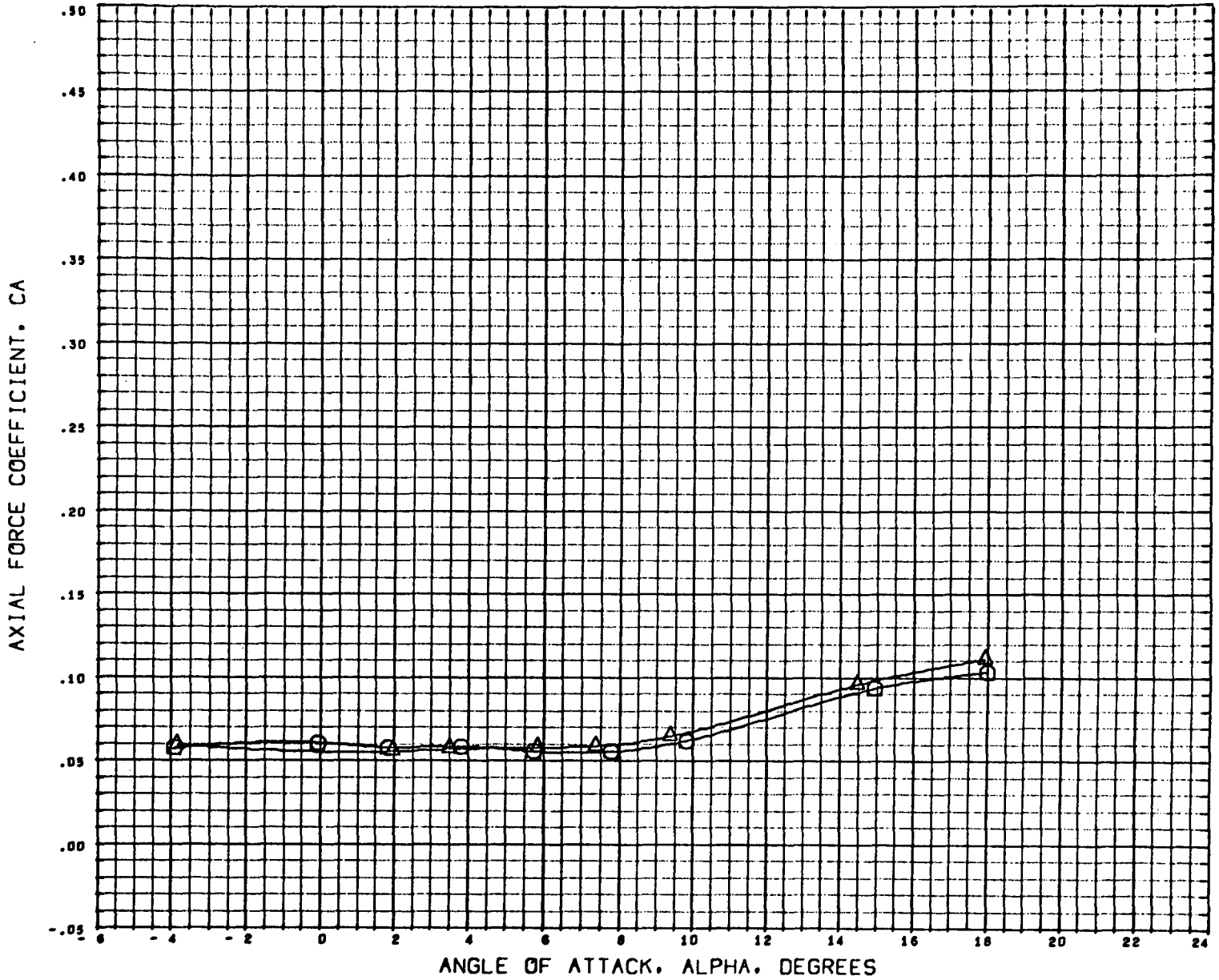
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(RN3065)	NSRDC-3210, MSFC/LMSC BOOSTER B1V1W1
(RN3061)	NSRDC-3210, MSFC/LMSC BOOSTER B1V2W1



ELEVTR	AILRON	RUDDER
0.000	0.000	0.000
0.000	0.000	0.000

REFERENCE INFORMATION		
SREF	1.3550	89. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.5930	FEET
YMRP	0.0000	FEET
ZMRP	0.0187	FEET
SCALE	0.0150	SCALE

MACH 0.800

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



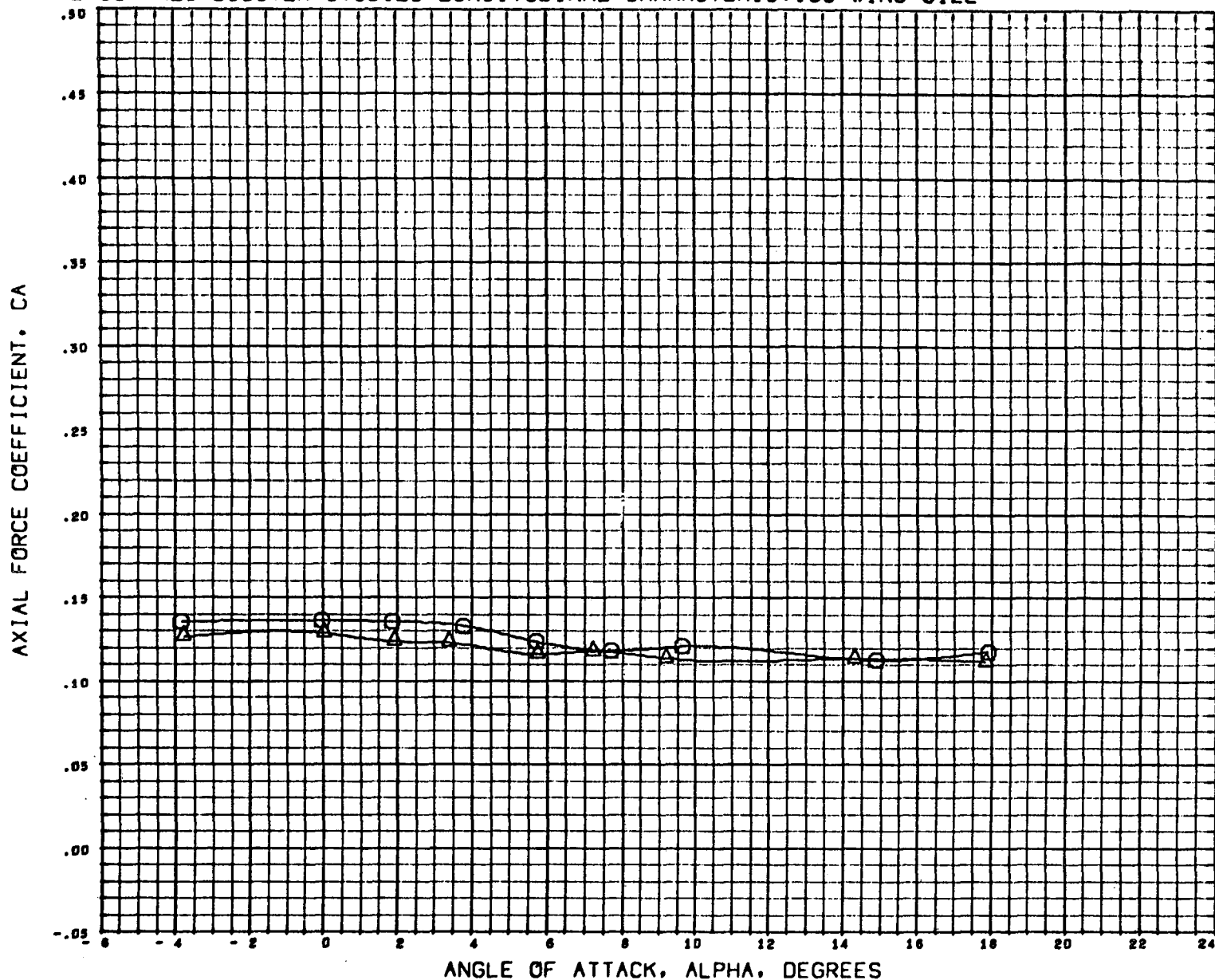
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(RN3065) 	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1
(RN3061) 	NSRDC-3210,MSFC/LMSC BOOSTER B1V2W1

ELEVTR	AILRON	RUDDER
0.000	0.000	0.000
0.000	0.000	

REFERENCE INFORMATION		
SREF	1.3550	SQ. FT.
LREF	3.4530	FEET
BREF	3.4330	FEET
XMRP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0187	FEET
SCALE	0.0150	SCALE

MACH 0.902

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



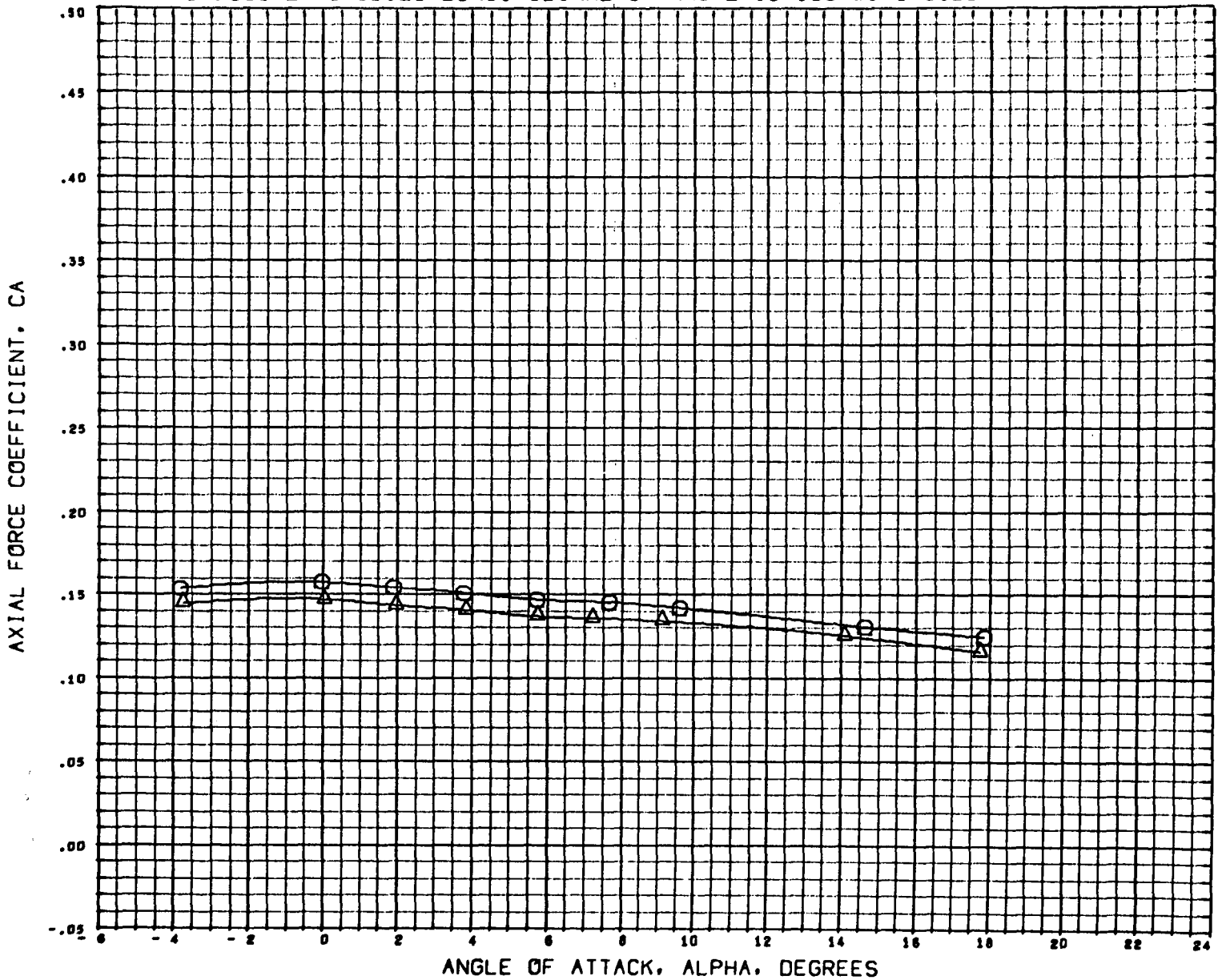
DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (RN3065) Q NSRDC-3210, NSFC/LMSC BOOSTER B1V1W1
 (RN3061) Δ NSRDC-3210, NSFC/LMSC BOOSTER B1V2W1



ELEVTR AILRON RUDDER
 0.000 0.000 0.000
 0.000 0.000 0.000

REFERENCE INFORMATION
 SREF 1.3950 80. FT.
 LREF 3.4330 FEET
 BREF 3.4330 FEET
 XMRP 2.9950 FEET
 YMRP 0.0000 FEET
 ZMRP 0.0167 FEET
 SCALE 0.0150 SCALE

MACH 1.002

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



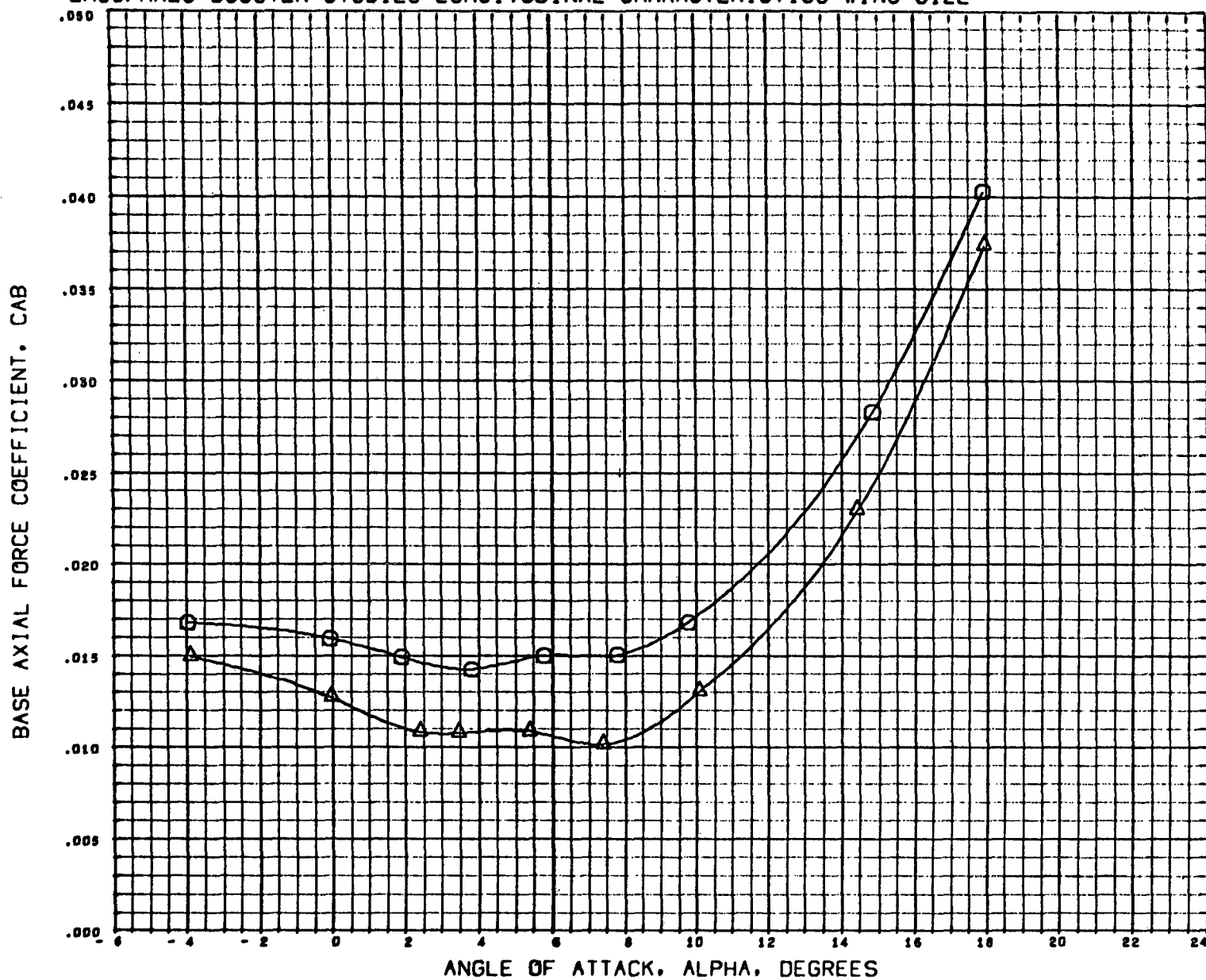
DATA SET SYMBOL (RN3065) (RN3066)   CONFIGURATION DESCRIPTION NSRDC-3210, NSFC/LMSC BOOSTER B1V1W1 NSRDC-3210, NSFC/LMSC BOOSTER B1V2W1

ELEVTR AILRON RUDDER
0.000 0.000 0.000
0.000 0.000

REFERENCE INFORMATION
SREF 1.3550 60.FT.
LREF 3.4530 FEET
BREF 3.4530 FEET
XMRP 2.9950 FEET
YMRP 0.0000 FEET
ZMRP 0.0167 FEET
SCALE 0.0150 SCALE

MACH 1.125

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



DATA SET SYMBOL (RN3065) CONFIGURATION DESCRIPTION NSRDC-3210, MSFC/LMSC BOOSTER B1V1W1
 (RN3061) NSRDC-3210, MSFC/LMSC BOOSTER B1V2W1

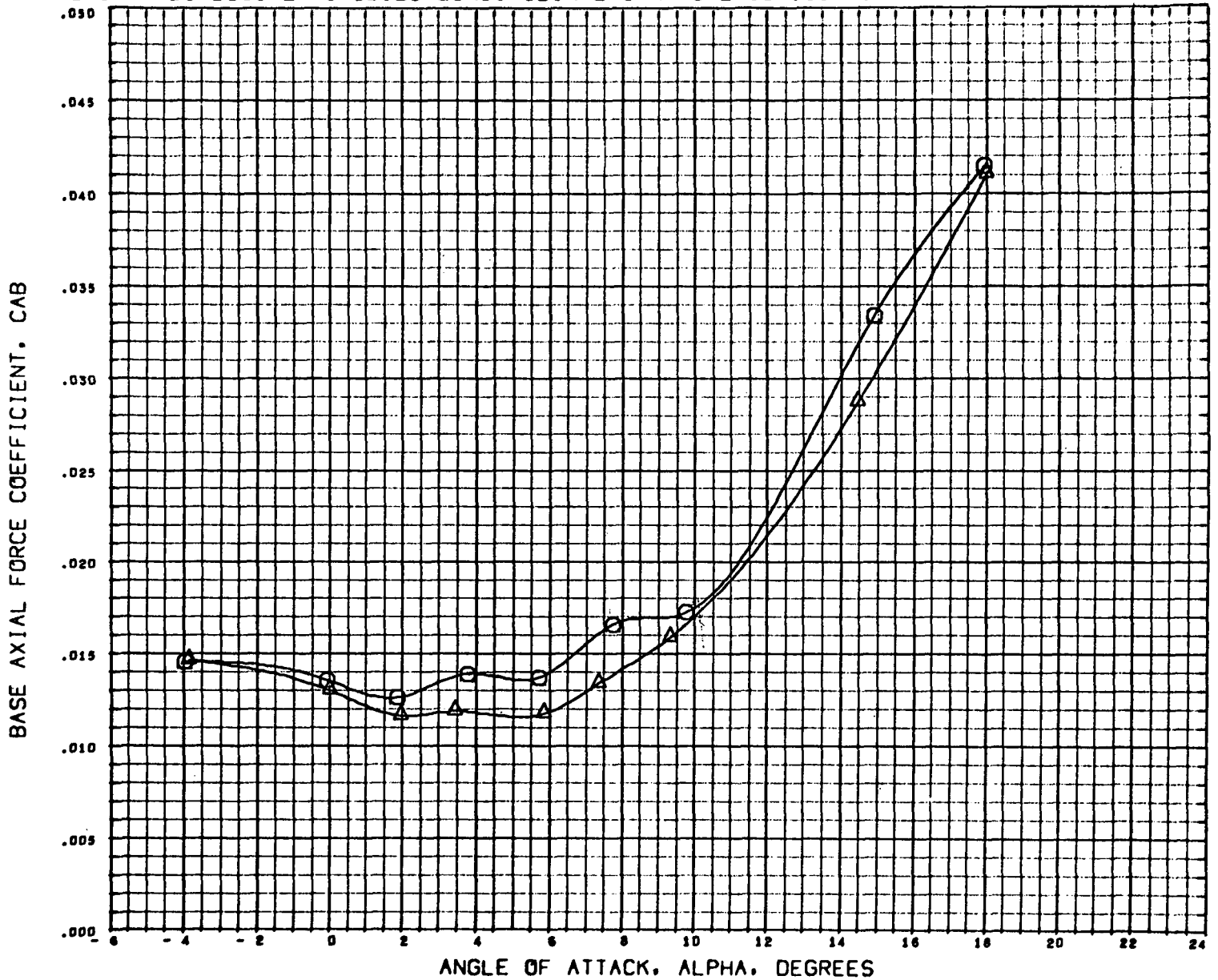
ELEVTR 0.000 AILRON 0.000 RUDDER 0.000
 0.000 0.000 0.000

REFERENCE INFORMATION
 SREF 1.3550 80. FT.
 LREF 3.4530 FEET
 BREF 3.4530 FEET
 XMRP 2.9950 FEET
 YMRP 0.0000 FEET
 ZMRP 0.0187 FEET
 SCALE 0.0150 SCALE

MACH 0.704

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LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



DATA SET SYMBOL
(R3063) \bigcirc
(R3061) \triangle

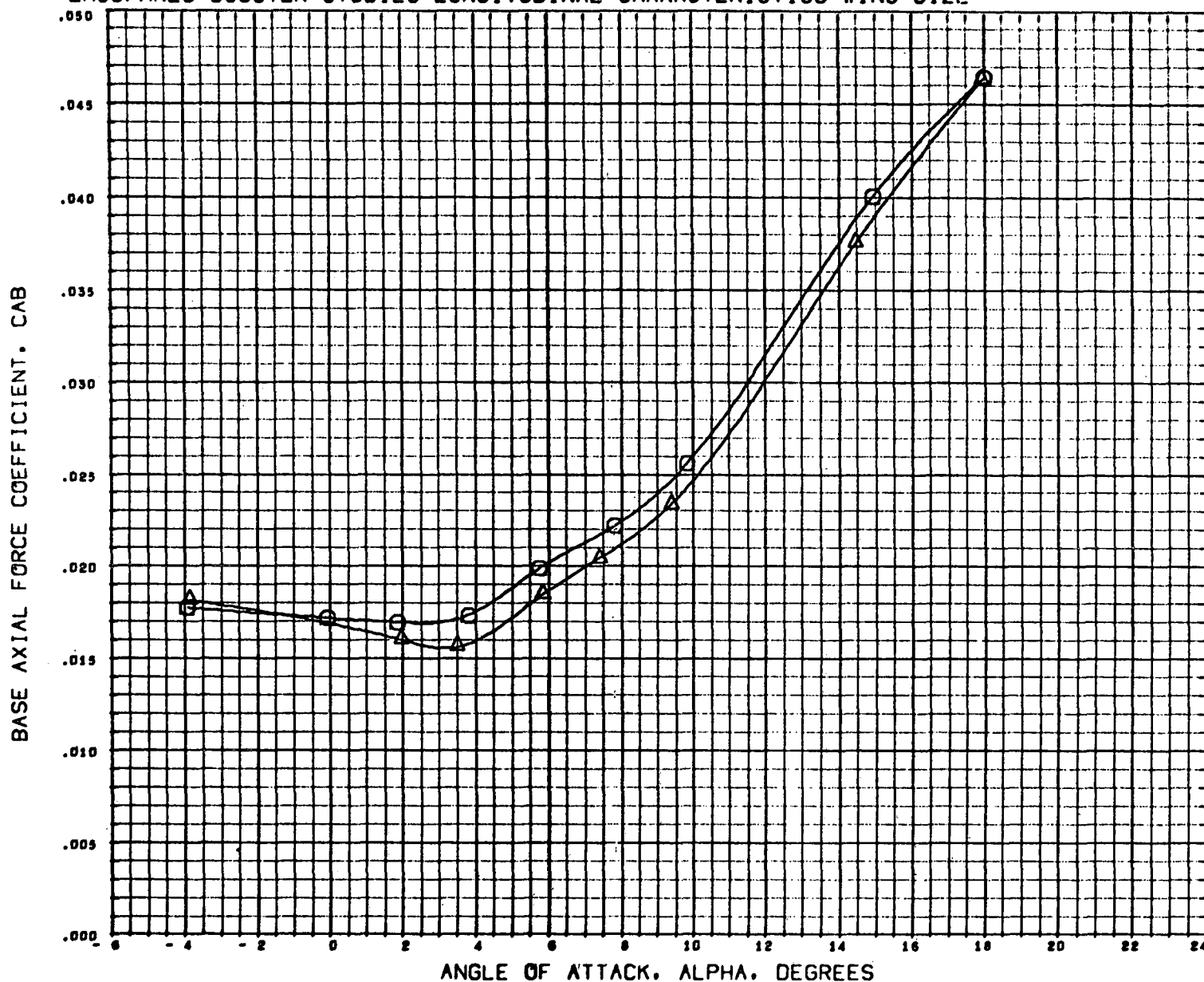
CONFIGURATION DESCRIPTION
N8RDC-3210, MSFC/LMSC BOOSTER B1V1W1
N8RDC-3210, MSFC/LMSC BOOSTER B1V2W1

ELEVTR	AILRON	RUDDER
0.000	0.000	0.000
0.000	0.000	0.000

REFERENCE INFORMATION		
SREF	1.3550	80. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0187	FEET
SCALE	0.0150	SCALE

MACH 0.800

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



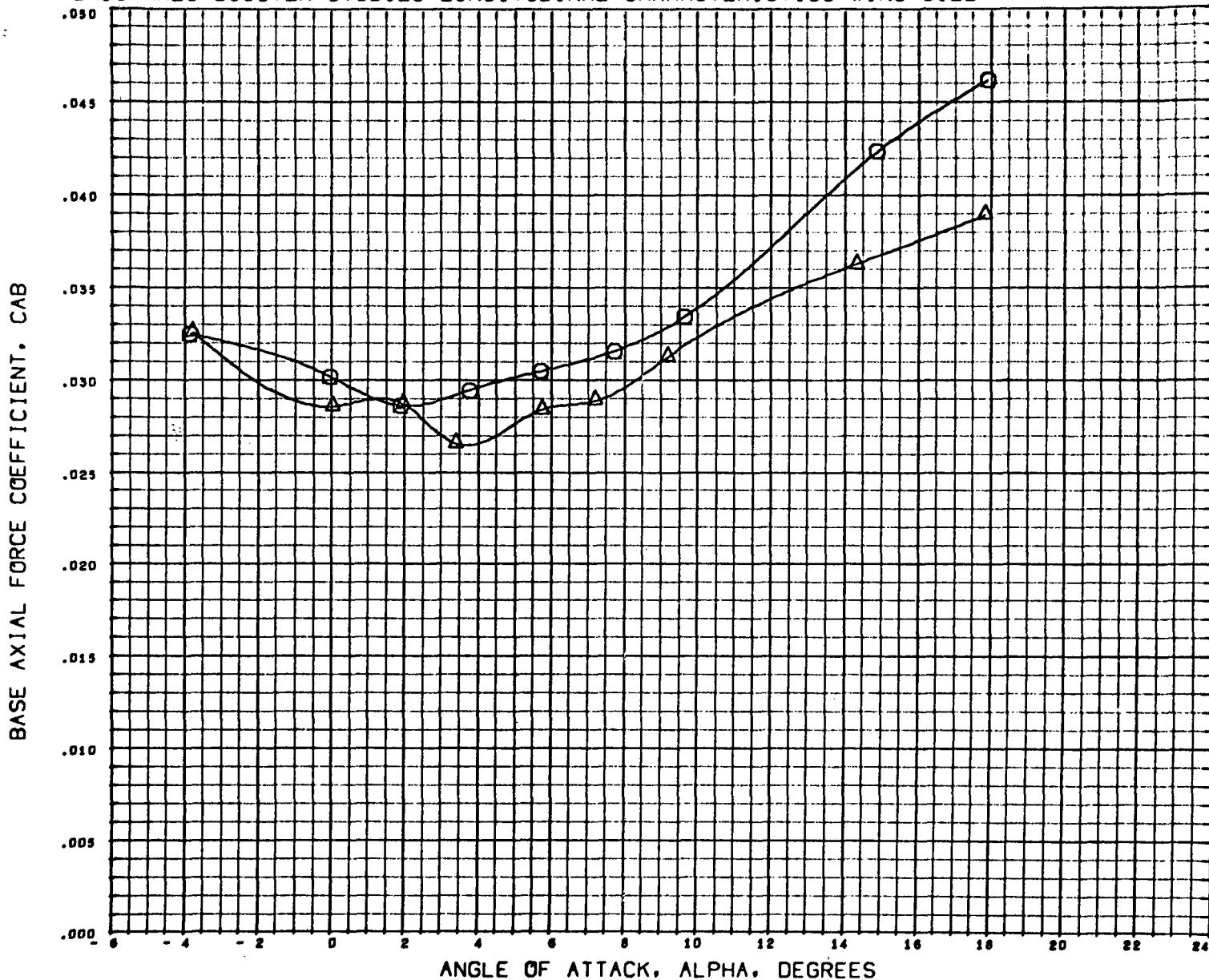
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(RN3065)	NSRDC-3210, NSFC/LMSC BOOSTER B1V1W1
(RN3061)	NSRDC-3210, NSFC/LMSC BOOSTER B1V2W1

ELEVTR	AILRON	RUDDER
0.000	0.000	0.000
0.000	0.000	0.000

REFERENCE INFORMATION		
SREF	1.3550	SQ. FT.
LREF	3.4330	FEET
BREF	3.4330	FEET
XMRP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0187	FEET
SCALE	0.0150	SCALE

MACH 0.902

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



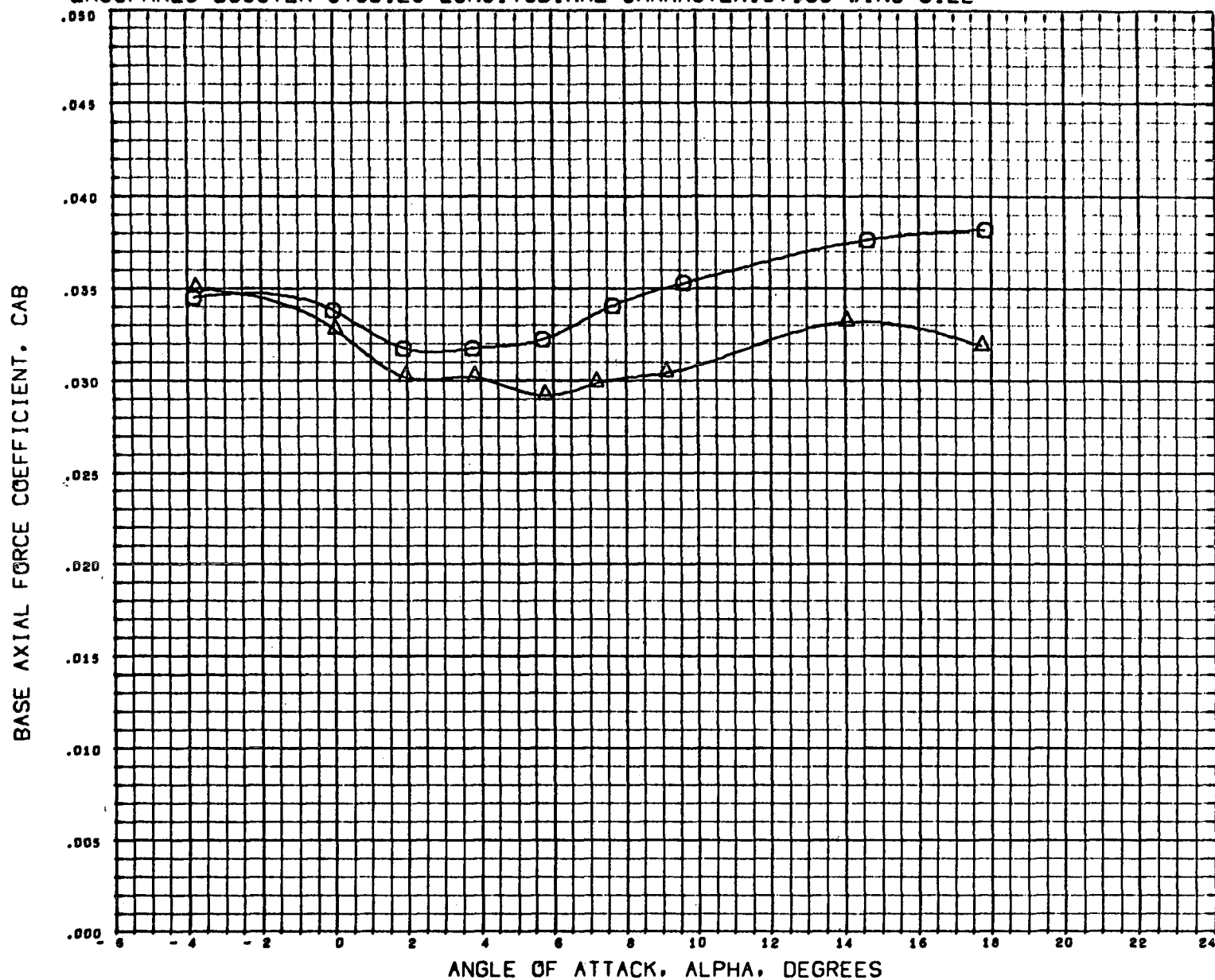
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(RN3065)	NSRDC-3210, MSFC/LMSC BOOSTER B1V1W1
(RN3061)	NSRDC-3210, MSFC/LMSC BOOSTER B1V2W1

ELEVTR	AILRON	RUDDER
0.000	0.000	0.000
0.000	0.000	0.000

REFERENCE INFORMATION		
SREF	1.3550	80. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0167	FEET
SCALE	0.0150	SCALE

MACH 1.002

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



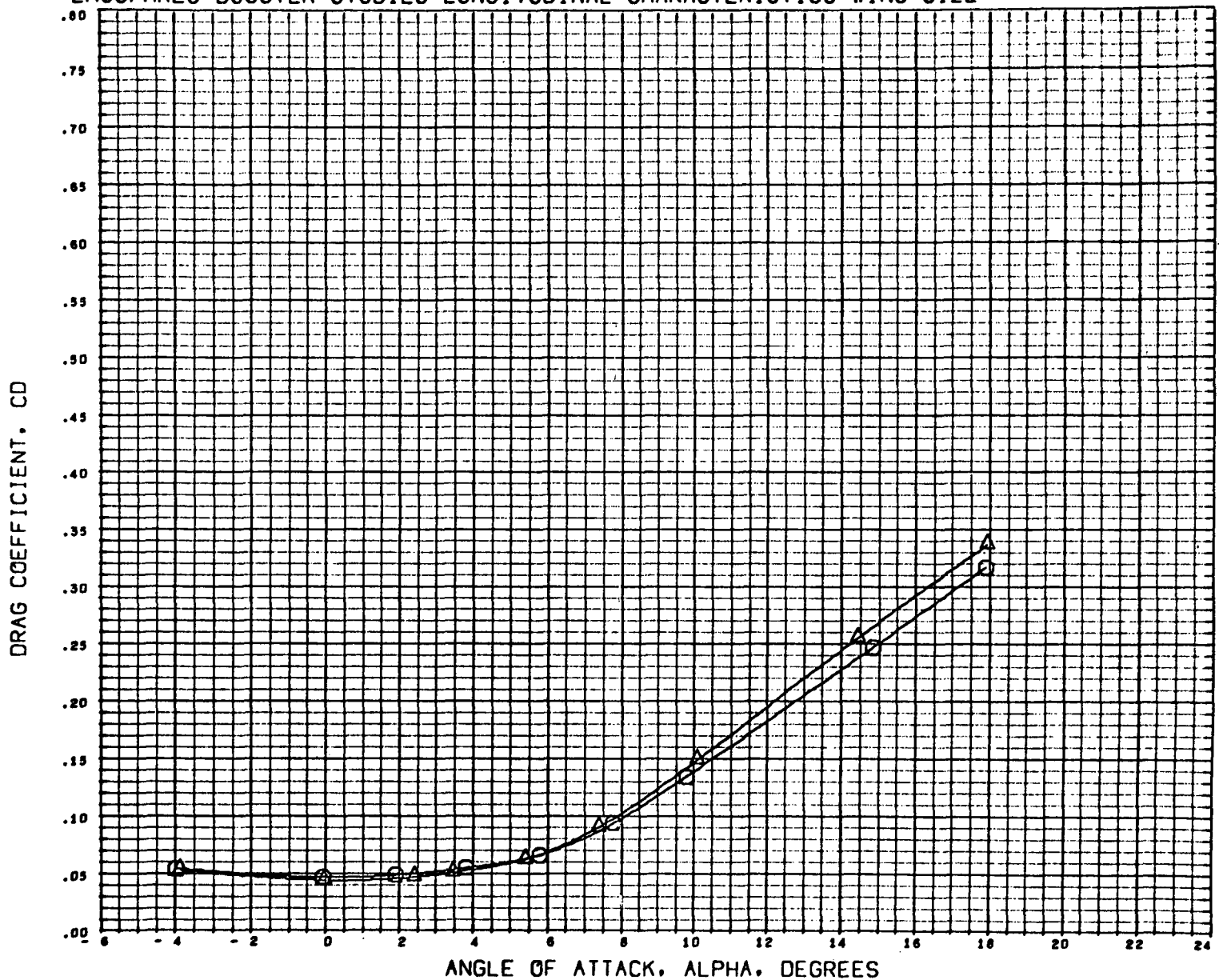
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(RN3065)	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1
(RN3061)	NSRDC-3210,MSFC/LMSC BOOSTER B1V2W1

ELEVTR	AILRON	RUDDER
0.000	0.000	0.000
0.000	0.000	0.000

REFERENCE INFORMATION		
SREF	1.3550	50.FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.9950	FEET
YMRP	0.0000	FEET
ZMRP	0.0187	FEET
SCALE	0.0150	SCALE

MACH 1.125

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



DATA SET SYMBOL
(RN3065)
(RN3061)



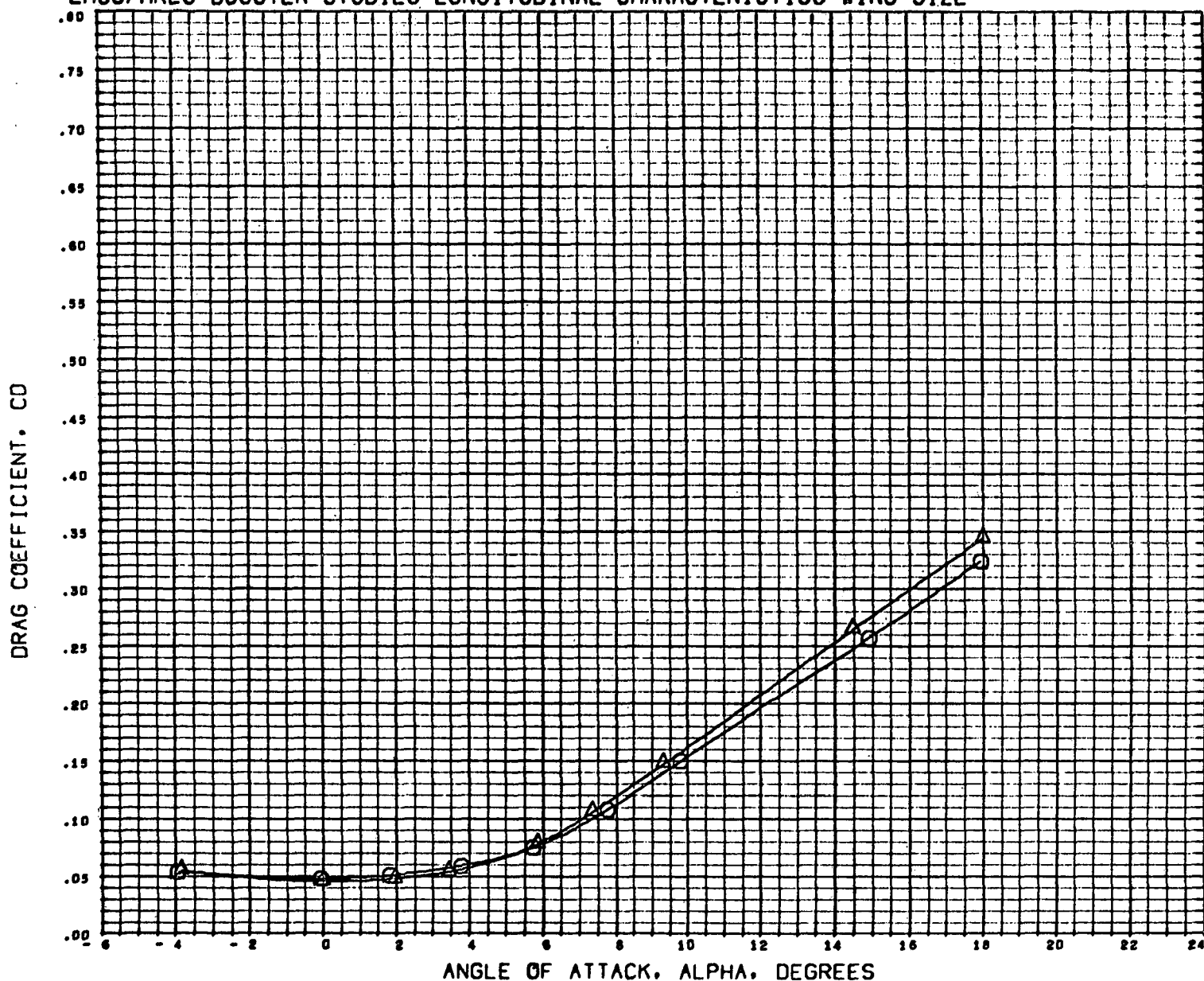
CONFIGURATION DESCRIPTION
NSRDC-3210, MSFC/LMSC BOOSTER B1V1W1
NSRDC-3210, MSFC/LMSC BOOSTER B1V2W1

ELEVTR	AILRON	RUDDER
0.000	0.000	0.000
0.000	0.000	0.000

REFERENCE INFORMATION	
SREF	1.3550 SQ. FT.
LREF	3.4930 FEET
BREF	3.4930 FEET
XMRP	2.5950 FEET
YMRP	0.0000 FEET
ZMRP	0.0167 FEET
SCALE	0.0150 SCALE

MACH 0.704

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



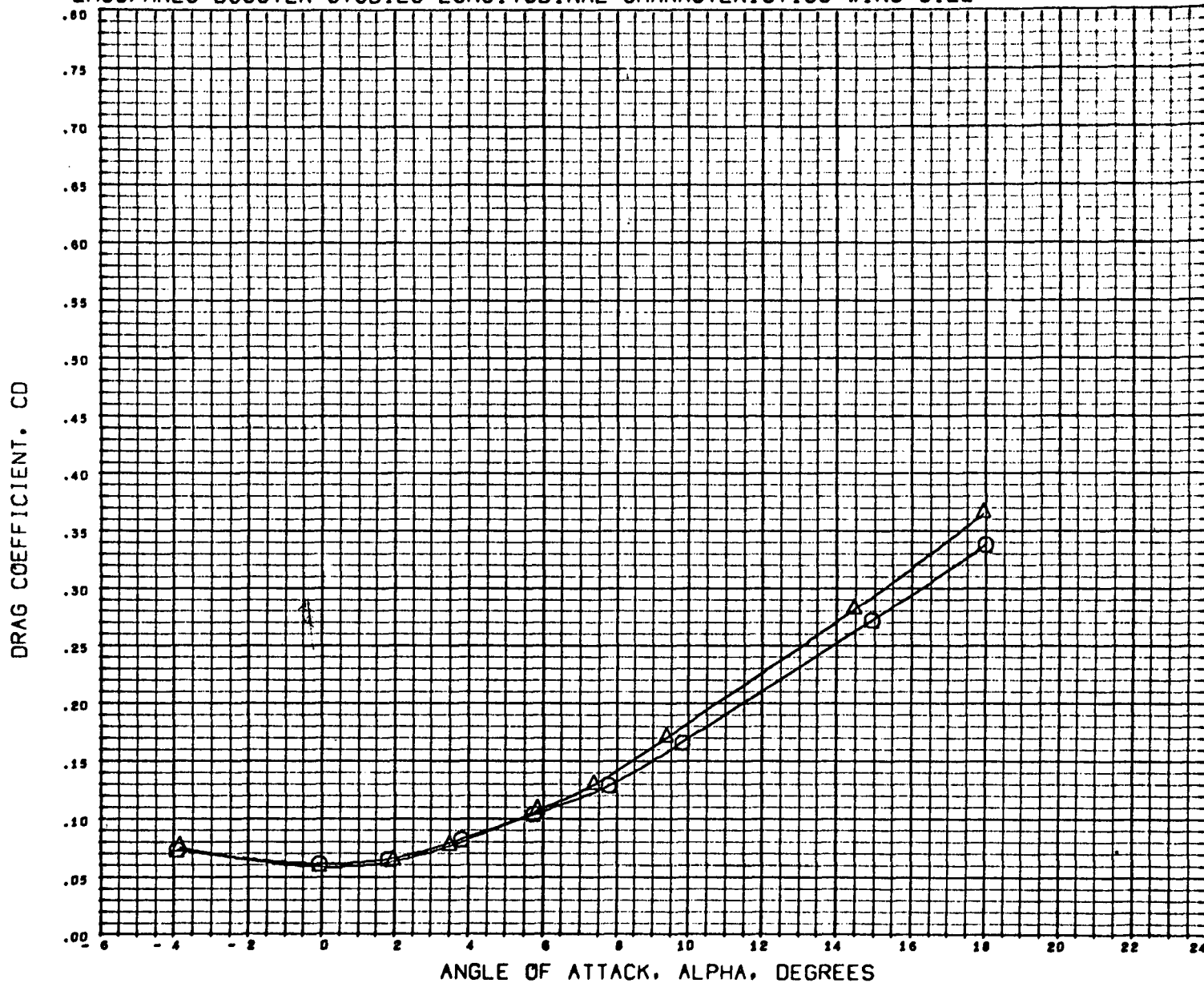
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(RN3065)	NSRDC-3210, MSFC/LMSC BOOSTER B1V1W1
(RN3061)	NSRDC-3210, MSFC/LMSC BOOSTER B1V2W1

ELEVTR	AILRON	RUDDER
0.000	0.000	0.000
0.000	0.000	0.000

REFERENCE INFORMATION		
SREF	1.3550	80. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0187	FEET
SCALE	0.0150	SCALE

MACH 0.800

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



DATA SET SYMBOL
(RN3065)
(RN3061)



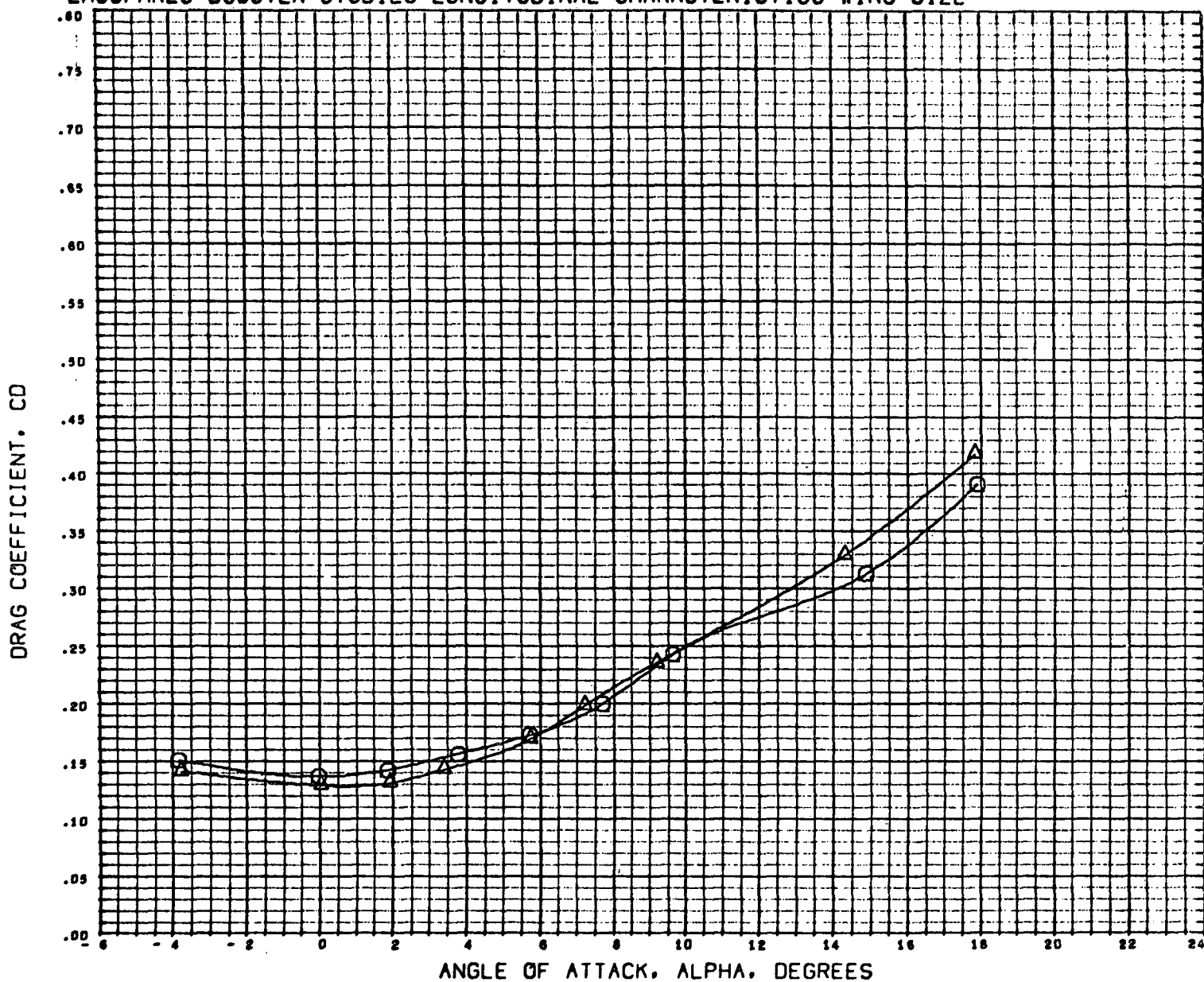
CONFIGURATION DESCRIPTION
NSRDC-3210, MSFC/LMSC BOOSTER B1V1W1
NSRDC-3210, MSFC/LMSC BOOSTER B1V2W1

ELEVTR AILRON RUDDER
0.000 0.000 0.000
0.000 0.000

REFERENCE INFORMATION
SREF 1.3550 SQ.FT.
LREF 3.4530 FEET
BREF 3.4530 FEET
XMRP 2.5950 FEET
YMRP 0.0000 FEET
ZMRP 0.0167 FEET
SCALE 0.0150 SCALE

MACH 0.902

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



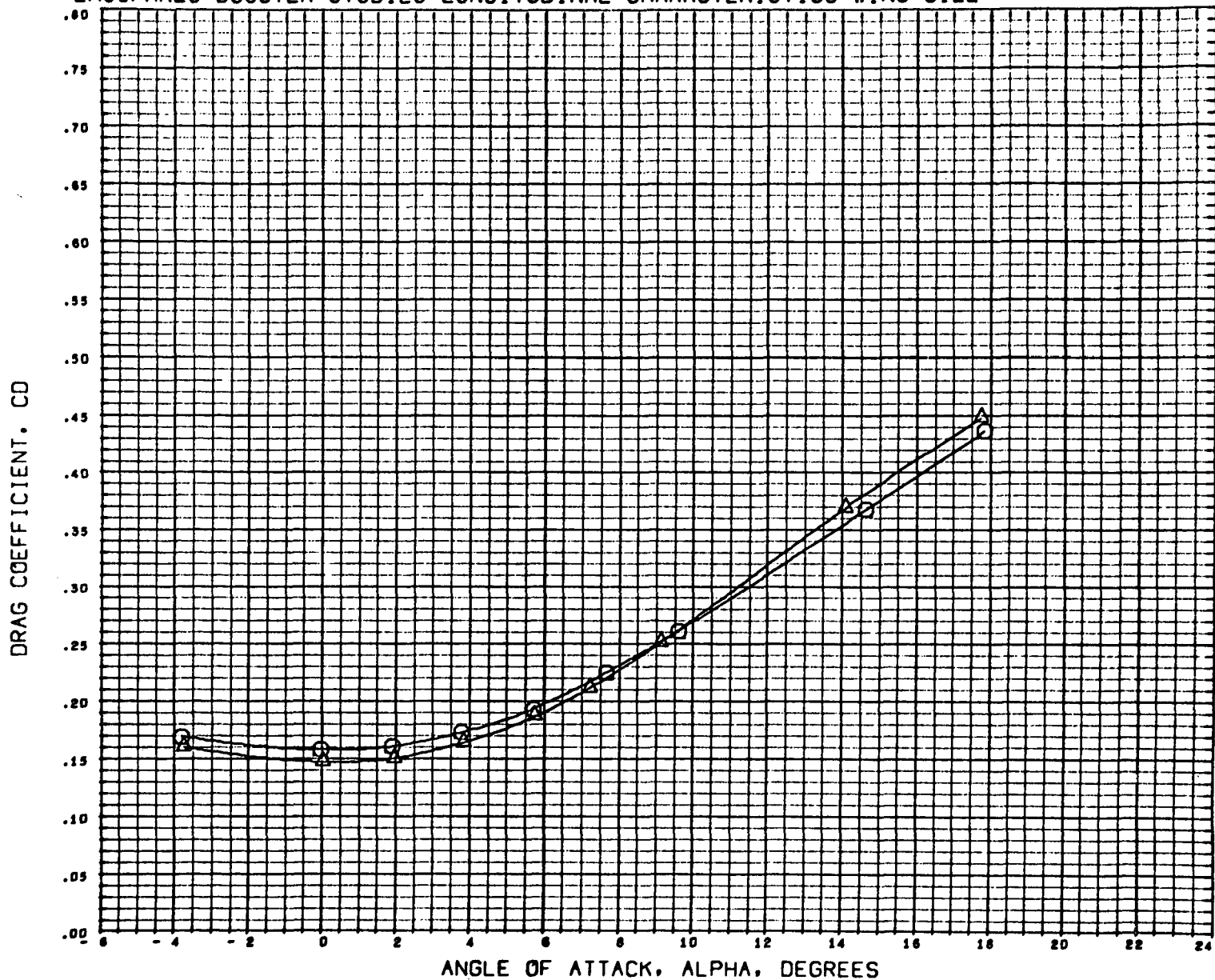
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(RNS065)	MSRDC-3210,MSFC/LMSC BOOSTER B1V1W1
(RNS061)	MSRDC-3210,MSFC/LMSC BOOSTER B1V2W1



ELEVTR	AILRON	RUDDER
0.000	0.000	0.000
0.000	0.000	0.000

REFERENCE INFORMATION		
SREF	1.3550	89. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0187	FEET
SCALE	0.0150	SCALE

MACH 1.002

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



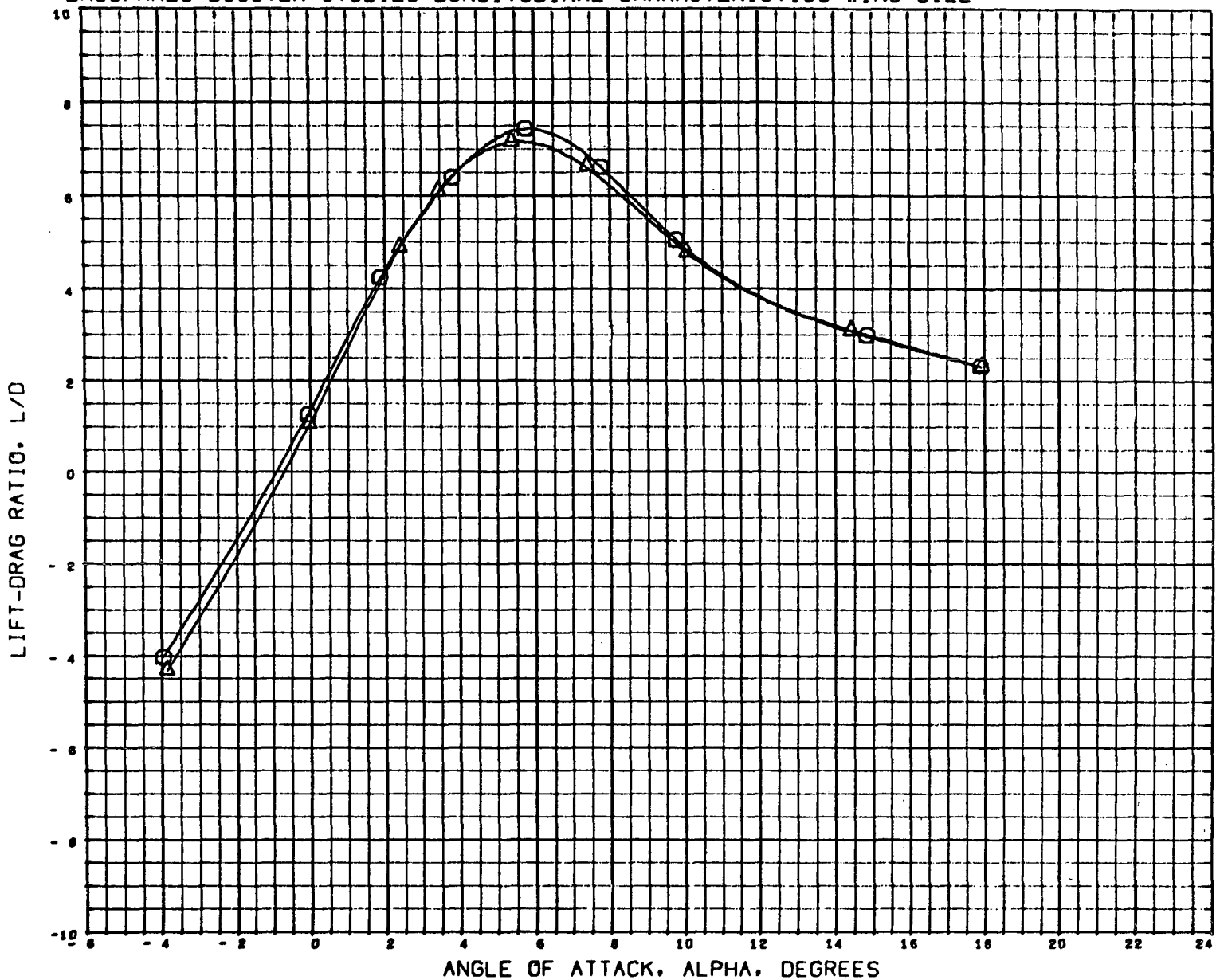
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(RN3065) 	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1
(RN3061) 	NSRDC-3210,MSFC/LMSC BOOSTER B1V2W1



ELEVTR	AILRON	RUDDER
0.000	0.000	0.000
0.000	0.000	

REFERENCE INFORMATION		
SREF	1.3550	SQ.FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0187	FEET
SCALE	0.0150	SCALE

MACH 1.125

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



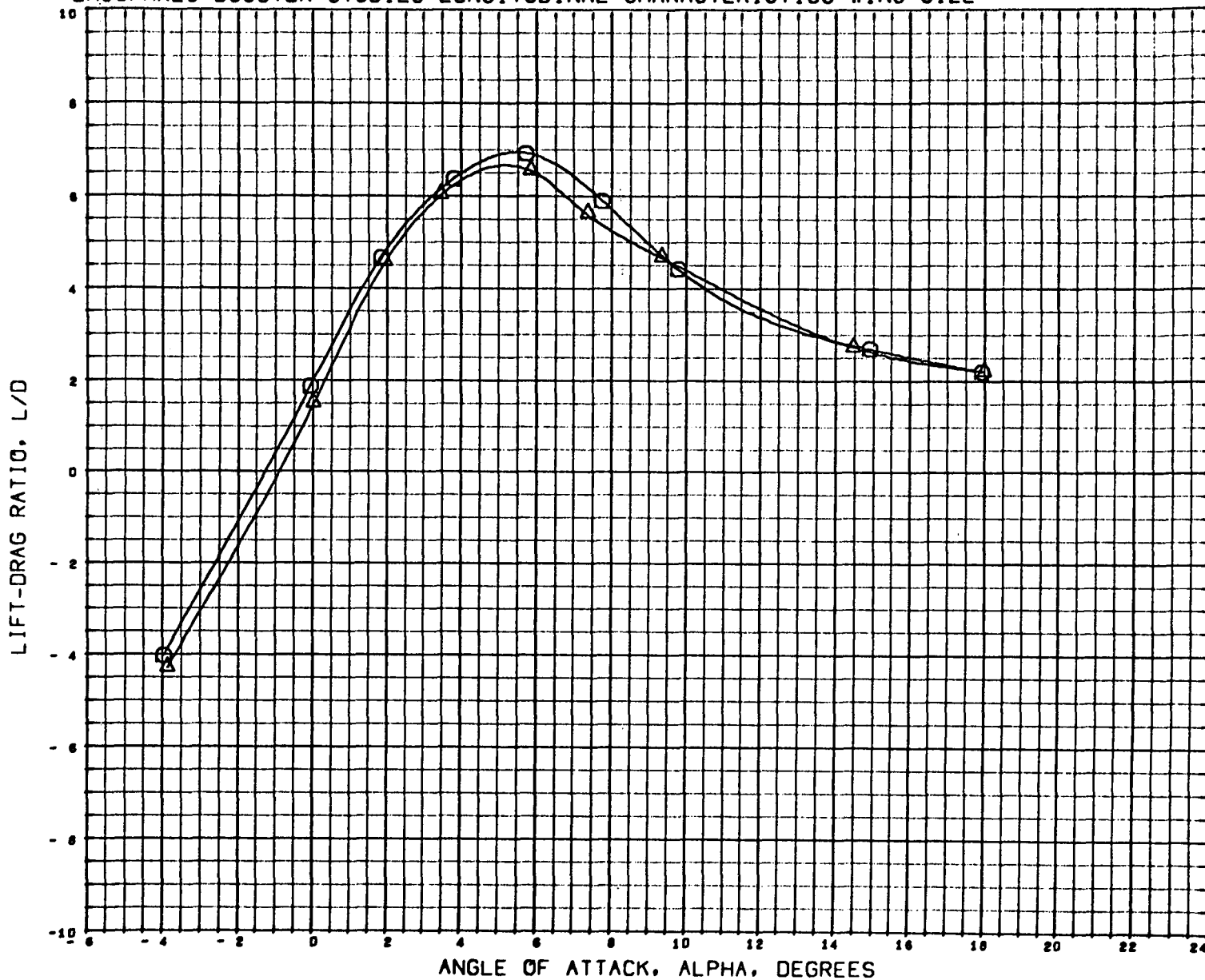
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(RN3065) 	NSRDC-3210, MSFC/LMSC BOOSTER 81V1W1
(RN3061) 	NSRDC-3210, MSFC/LMSC BOOSTER 81V2W1

ELEVTR	AILRON	RUDDER
0.000	0.000	0.000
0.000	0.000	0.000

REFERENCE INFORMATION		
SREF	1.3550	80. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0187	FEET
SCALE	0.0150	SCALE

MACH 0.704

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



DATA SET SYMBOL
(RN3065)
(RN3061)



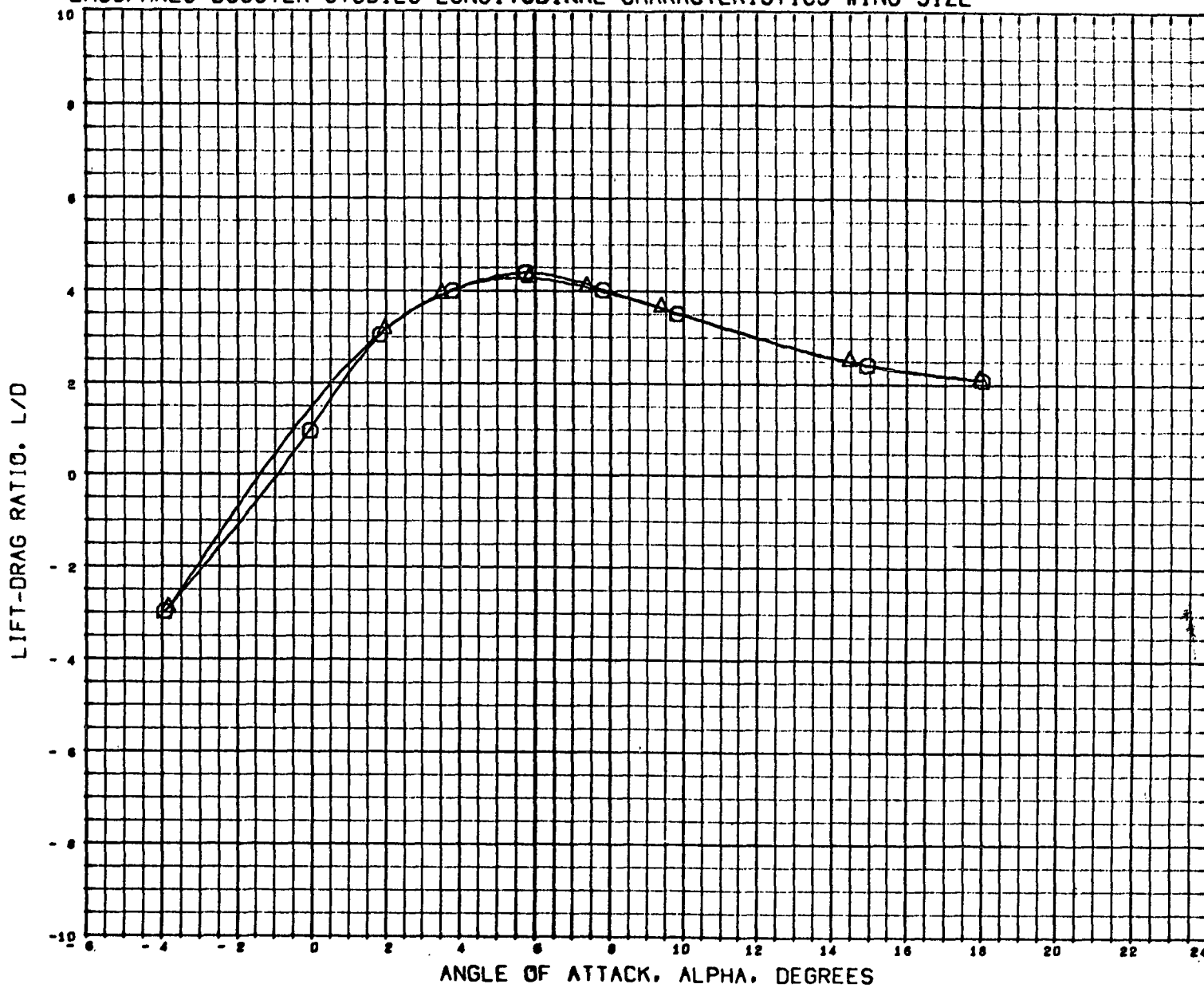
CONFIGURATION DESCRIPTION
NBRDC-3210, H8FC/LM8C BOOSTER B1V1W1
NBRDC-3210, H8FC/LM8C BOOSTER B1V2W1

ELEVTR	AILRON	RUDDER
0.000	0.000	0.000
0.000	0.000	0.000

REFERENCE INFORMATION		
SREF	1.3550	80. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.9950	FEET
YMRP	0.0000	FEET
ZMRP	0.0187	FEET
SCALE	0.0150	SCALE

MACH 0.800

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



DATA SET SYMBOL
(RN3065)
(RN3061)



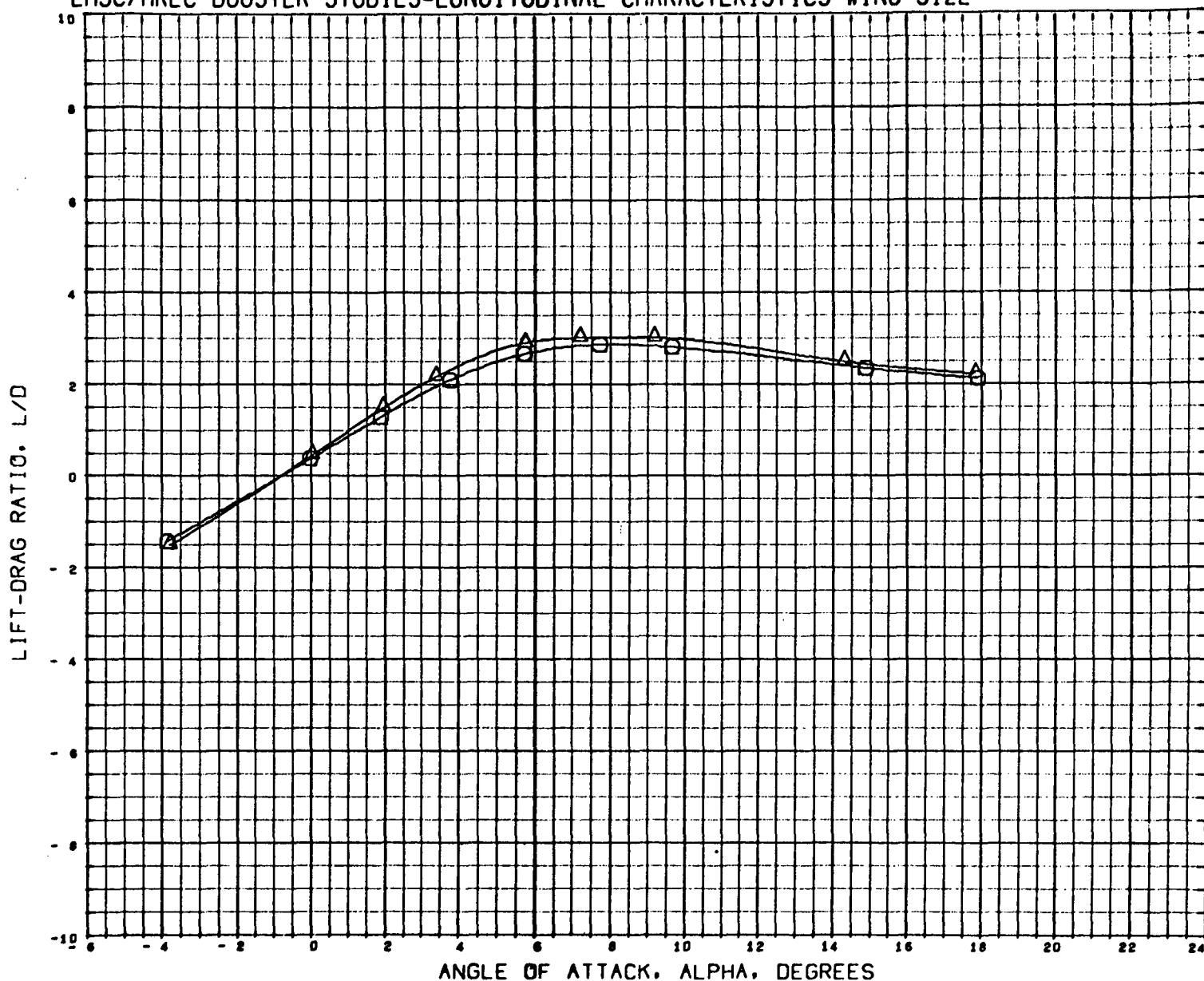
CONFIGURATION DESCRIPTION
N8RDC-3210, MSFC/LMSC BOOSTER 81V1W1
N8RDC-3210, MSFC/LMSC BOOSTER 81V2W1



ELEVTR	AILRON	RUDDER
0.000	0.000	0.000
0.000	0.000	0.000

REFERENCE INFORMATION		
SREF	1.3550	88. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0187	FEET
SCALE	0.0150	SCALE

MACH 0.902

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



DATA SET SYMBOL
(RNS065) 
(RNS061) 

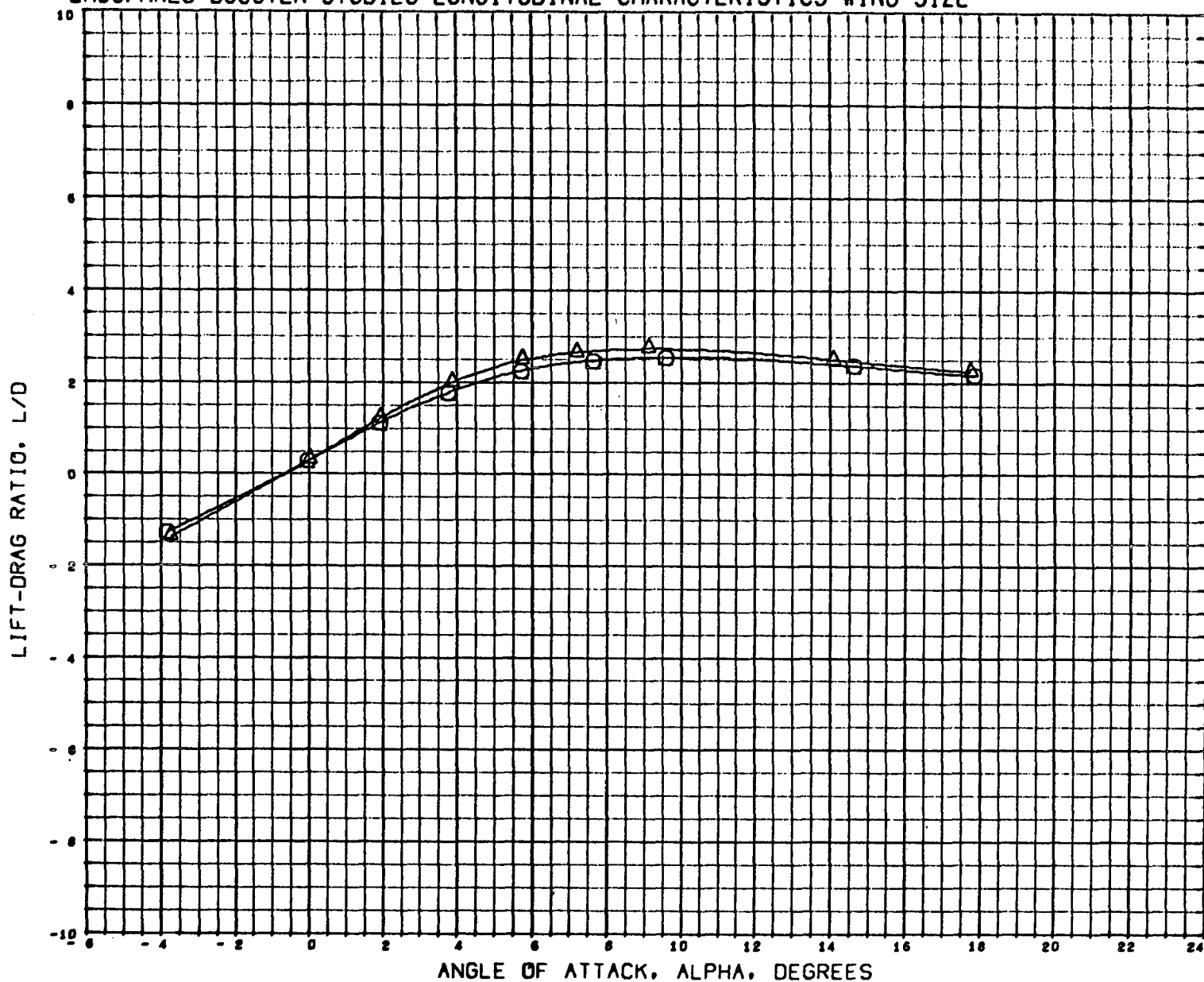
CONFIGURATION DESCRIPTION
NSRDC-3210, MSFC/LMSC BOOSTER B1V1W1
NSRDC-3210, MSFC/LMSC BOOSTER B1V2W1

ELEVTR	AILRON	RUDDER
0.000	0.000	0.000
0.000	0.000	0.000

REFERENCE INFORMATION		
SREF	1.3550	80. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0187	FEET
SCALE	0.0150	SCALE

MACH 1.002

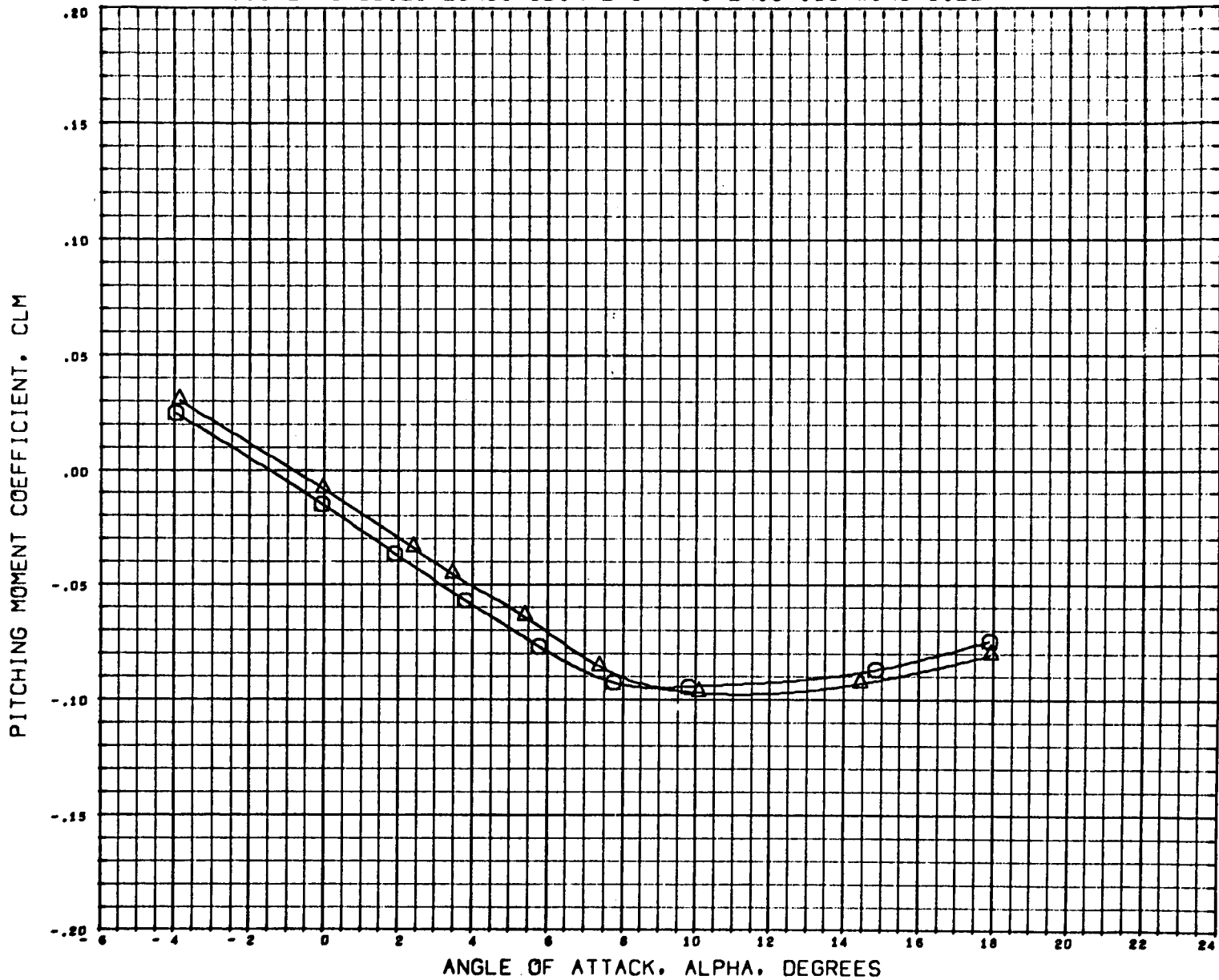
LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE





DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(RN3065)	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(RN3061)	NSRDC-3210,MSFC/LMSC BOOSTER B1V2W1	0.000	0.000		LREF	3.4530 FEET
					BREF	3.4530 FEET
					XMRP	2.5950 FEET
					YMRP	0.0000 FEET
					ZMRP	0.0167 FEET
					SCALE	0.0150 SCALE

MACH 1.125

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



DATA SET SYMBOL
(RN3065) 
(RN3061) 

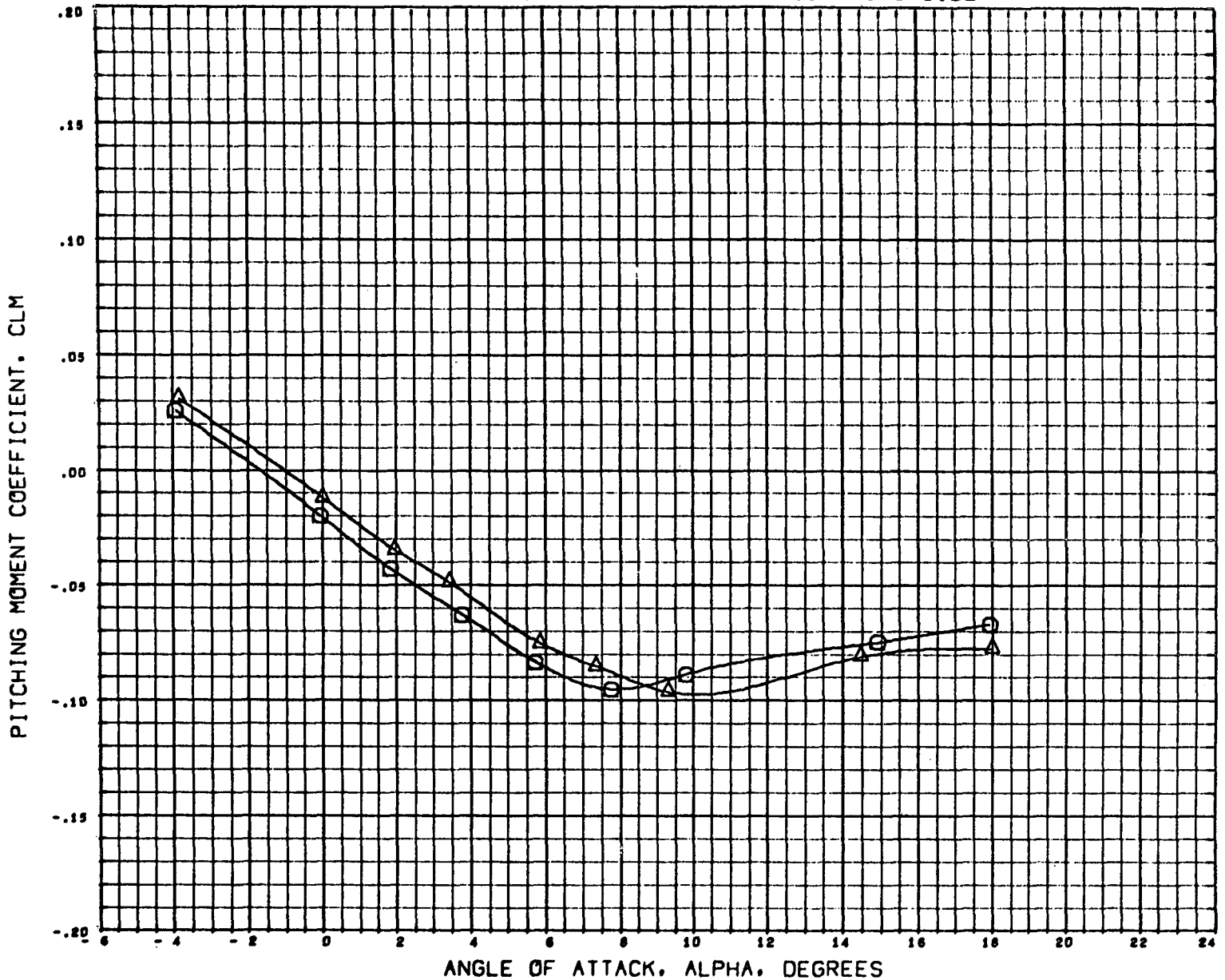
CONFIGURATION DESCRIPTION
NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1
NSRDC-3210,MSFC/LMSC BOOSTER B1V2W1



ELEVTR	AILRON	RUDDER
0.000	0.000	0.000
0.000	0.000	0.000

REFERENCE INFORMATION		
SREF	1.3550	80.FT.
LREF	3.4930	FEET
BREF	3.4930	FEET
XMRP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0187	FEET
SCALE	0.0150	SCALE

MACH 0.704

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



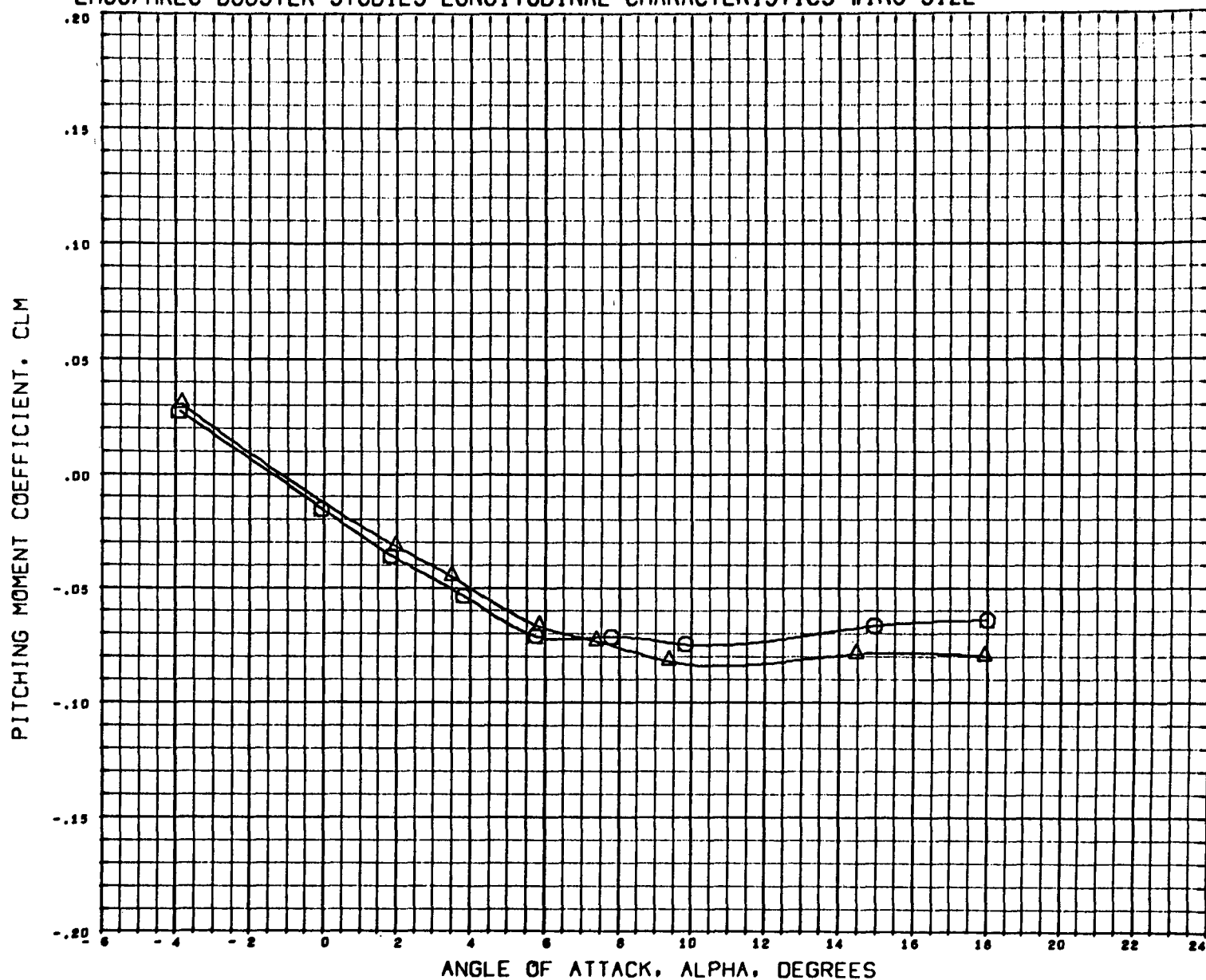
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(RN3065) 	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1
(RN3061) 	NSRDC-3210,MSFC/LMSC BOOSTER B1V2W1



ELEVTR	AILRON	RUDDER
0.000	0.000	0.000
0.000	0.000	0.000

REFERENCE INFORMATION		
SREF	1.3550	80.FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XWRP	2.5950	FEET
YWRP	0.0000	FEET
ZWRP	0.0187	FEET
SCALE	0.0150	SCALE

MACH 0.800

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



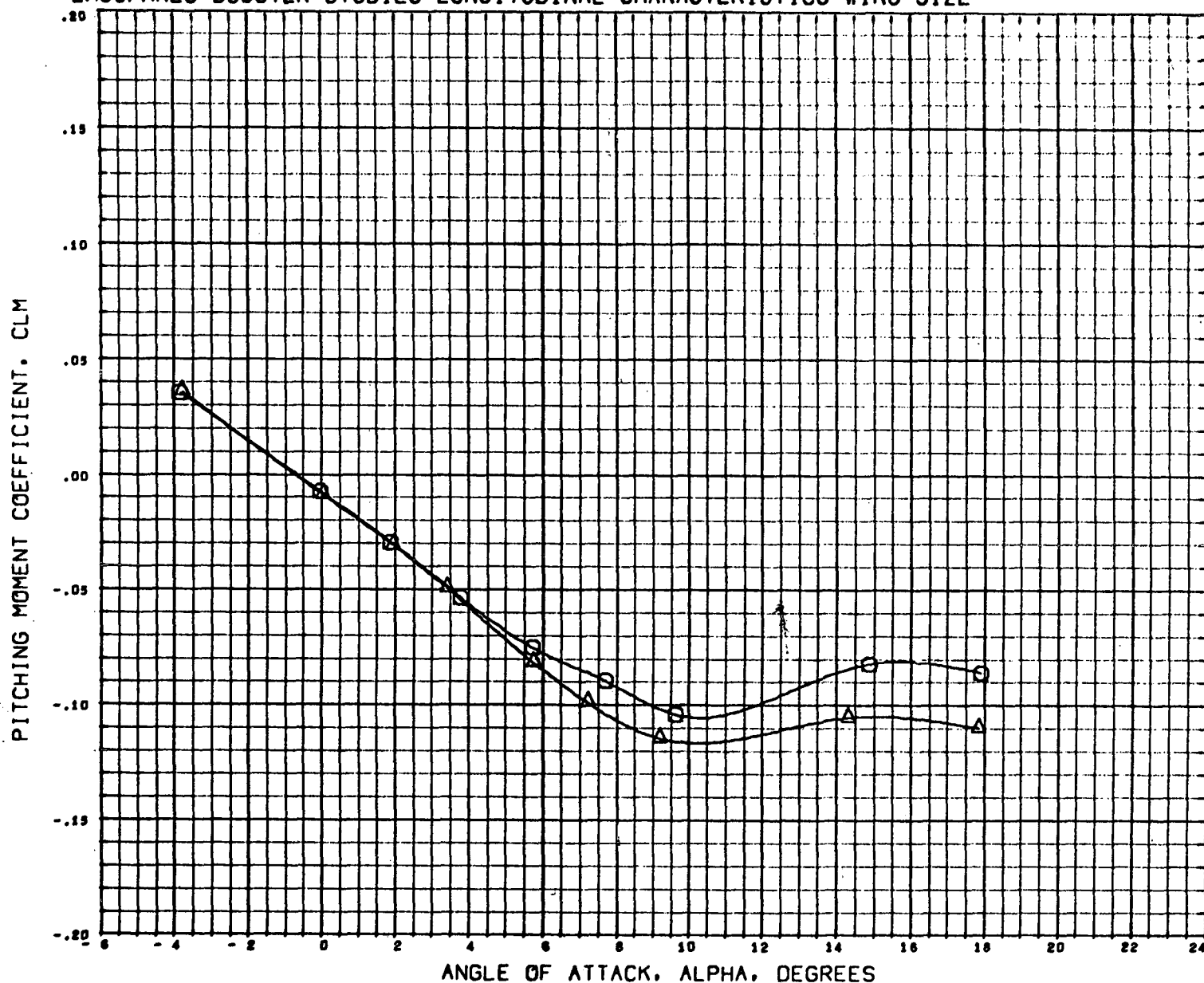
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(RN3065) 	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1
(RN3061) 	NSRDC-3210,MSFC/LMSC BOOSTER B1V2W1

ELEVTR	AILRON	RUDDER
0.000	0.000	0.000
0.000	0.000	

REFERENCE INFORMATION		
SREF	1.3550	SQ.FT.
LREF	3.4530	FEET
OREF	3.4530	FEET
XMRP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0167	FEET
SCALE	0.0150	SCALE

MACH 0.902

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



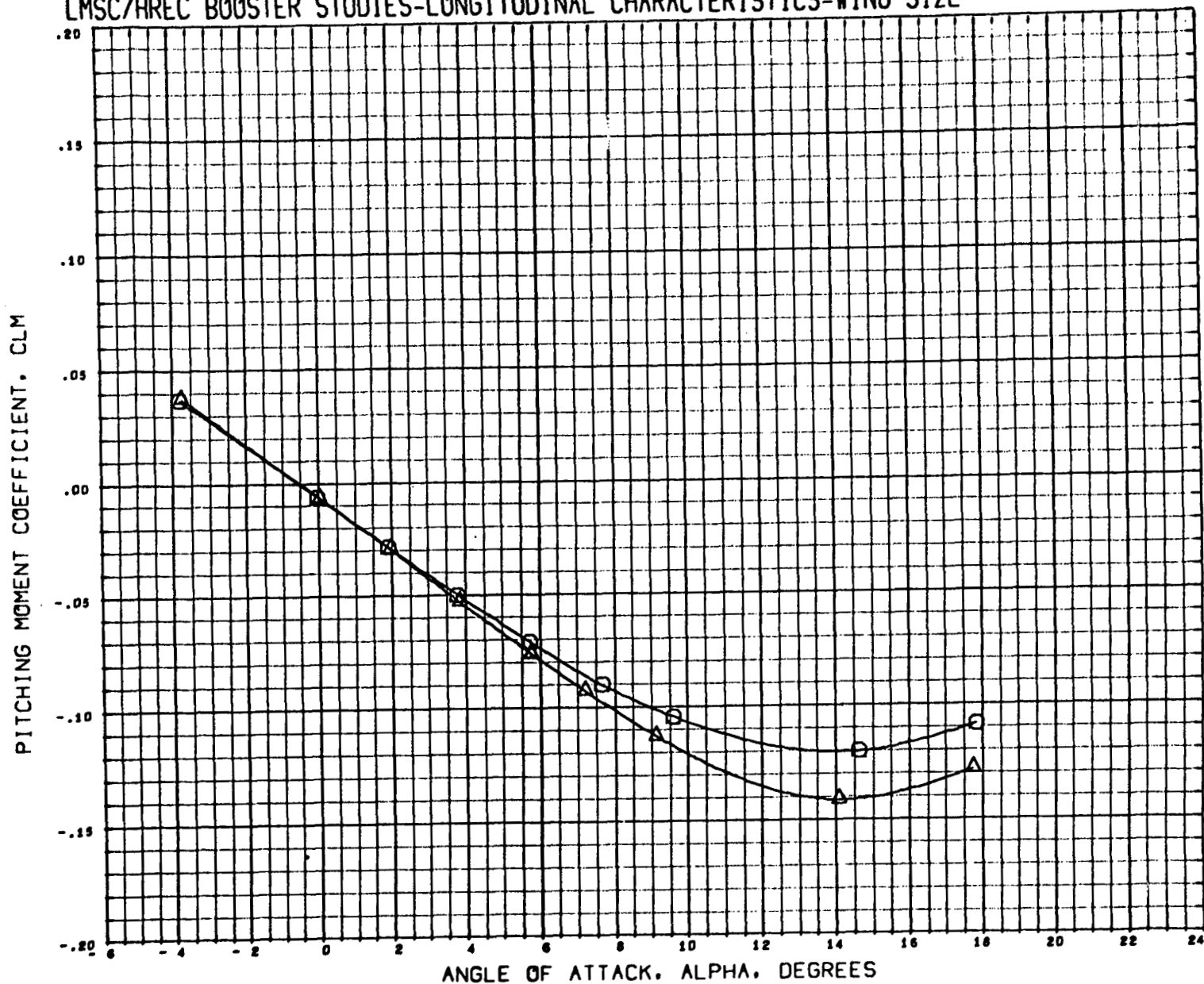
DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (RN3065) Q NSRDC-3210, MSFC/LMSC BOOSTER B1V1W1
 (RN3061) Δ NSRDC-3210, MSFC/LMSC BOOSTER B1V2W1

ELEVTR AILRON RUDDER
 0.000 0.000 0.000
 0.000 0.000 0.000

REFERENCE INFORMATION
 SREF 1.3550 SQ. FT.
 LREF 3.4330 FEET
 BREF 3.4330 FEET
 XMRP 2.5950 FEET
 YMRP 0.0000 FEET
 ZMRP 0.0167 FEET
 SCALE 0.0150 SCALE

MACH 1.002

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



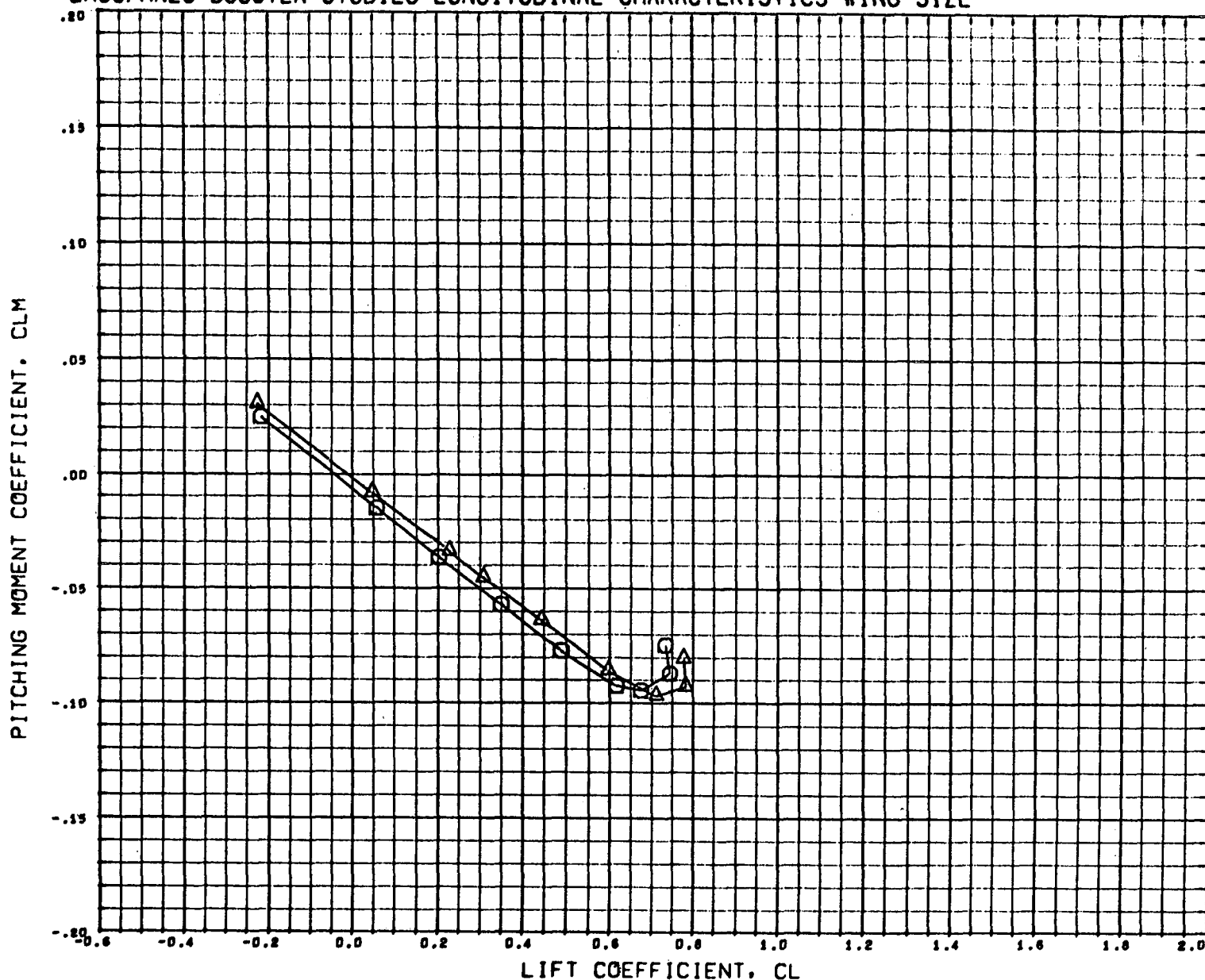
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(RN3065)	NSRDC-3210, MSFC/LMSC BOOSTER B1V1W1
(RN3061)	NSRDC-3210, MSFC/LMSC BOOSTER B1V2W1

ELEVTR	AILRON	RUDDER
0.000	0.000	0.000
0.000	0.000	

REFERENCE INFORMATION		
SREF	1.3550	50. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0167	FEET
SCALE	0.0150	SCALE

MACH 1.125

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



DATA SET SYMBOL
(RN3065)
(RN3061)



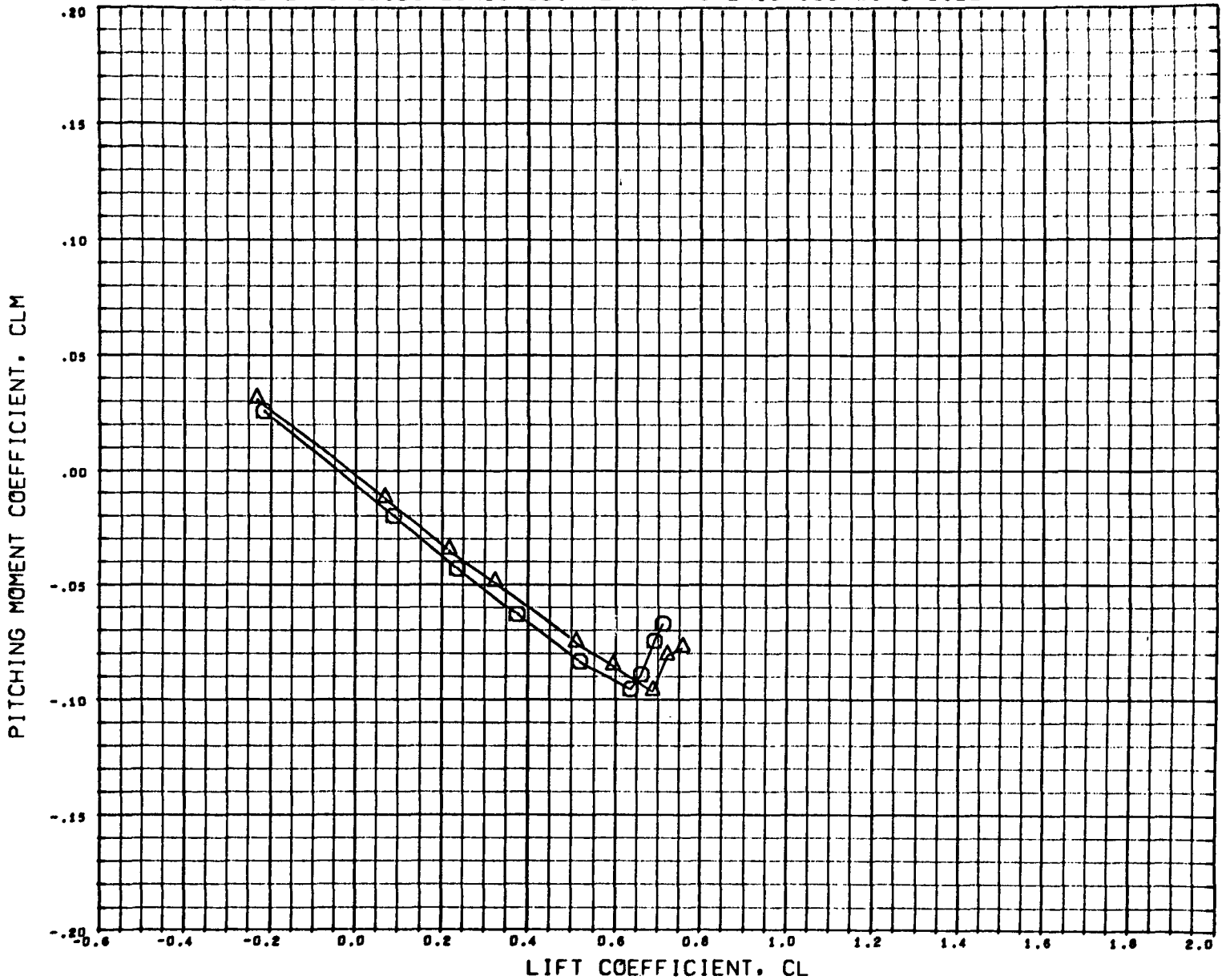
CONFIGURATION DESCRIPTION
NSRDC-3210, H8FC/LMSC BOOSTER B1V1W1
NSRDC-3210, H8FC/LMSC BOOSTER B1V2W1

ELEVTR	AILRON	RUDDER
0.000	0.000	0.000
0.000	0.000	0.000

REFERENCE INFORMATION		
SREF	1.3550	sq. ft.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.5950	FEET
YMRP	0.0000	FEET
ZMRP	0.0167	FEET
SCALE	0.0150	SCALE

MACH 0.704

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



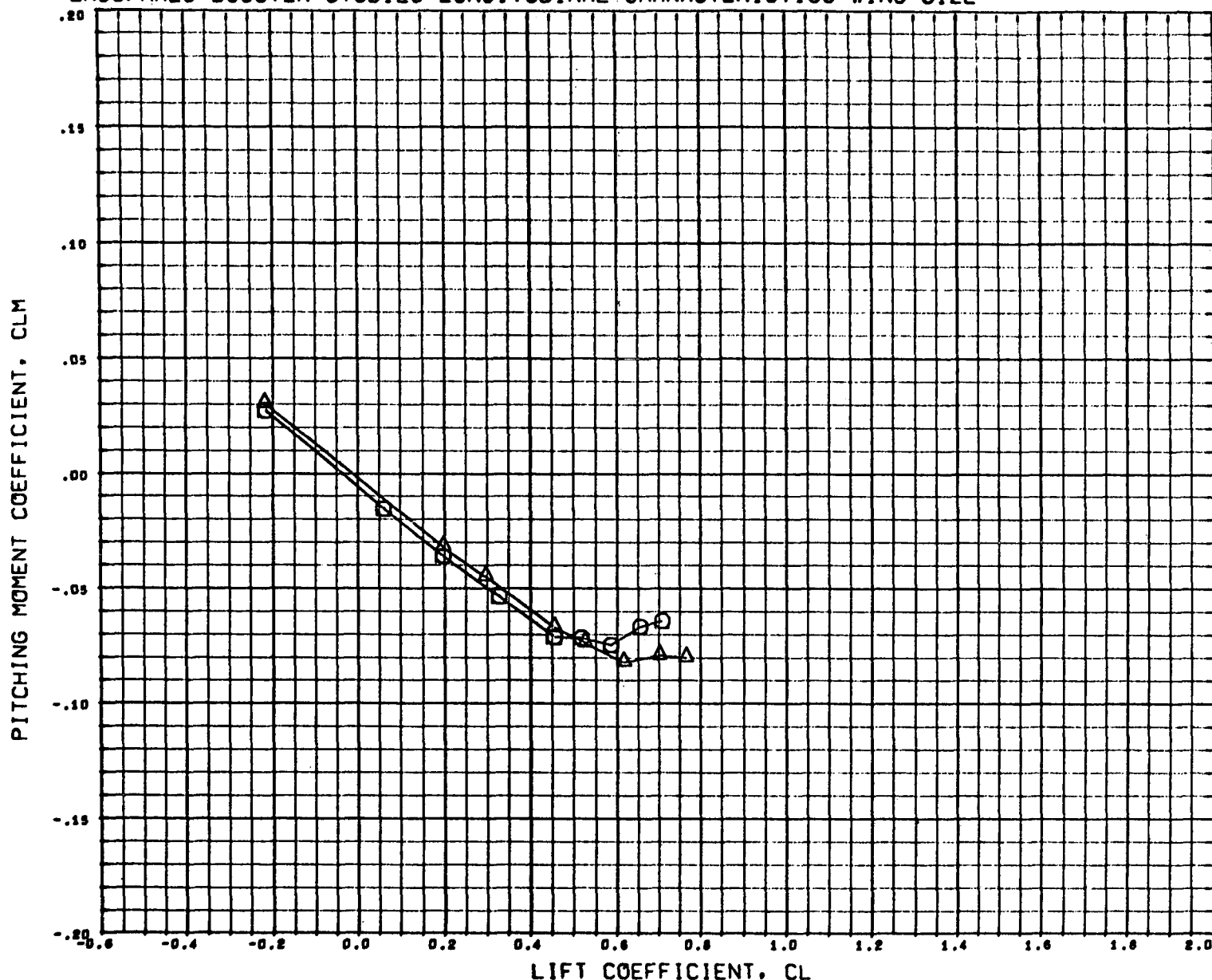
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(RN3065)	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1
(RN3061)	NSRDC-3210,MSFC/LMSC BOOSTER B1V2W1

ELEVTR	AILRON	RUDDER
0.000	0.000	0.000
0.000	0.000	

REFERENCE INFORMATION	
SREF	1.3550 SQ. FT.
LREF	3.4530 FEET
OREF	3.4530 FEET
XNRP	2.5950 FEET
YNRP	0.0000 FEET
ZNRP	0.0187 FEET
SCALE	0.0150 SCALE

MACH 0.800

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



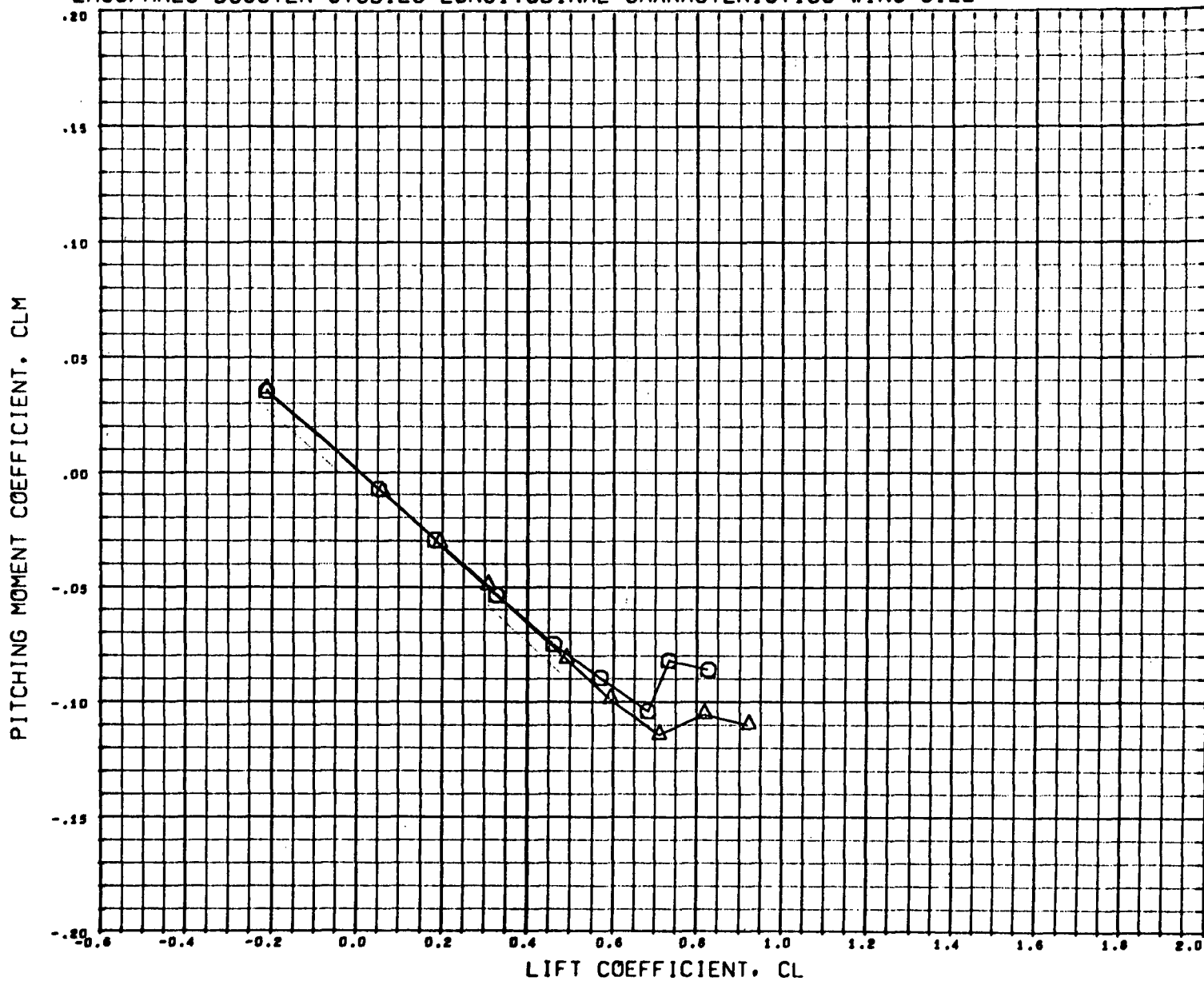
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(RN3065) Q	NSRDC-3210, MSFC/LMSC BOOSTER B1V1W1
(RN3061) Δ	NSRDC-3210, MSFC/LMSC BOOSTER B1V2W1

ELEVTR	AILRON	RUDDER
0.000	0.000	0.000
0.000	0.000	

REFERENCE INFORMATION		
SREF	1.3550	SQ. FT.
LREF	3.4530	FEET
BREF	3.4530	FEET
XMRP	2.9950	FEET
YMRP	0.0000	FEET
ZMRP	0.0167	FEET
SCALE	0.0150	SCALE

MACH 0.902

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



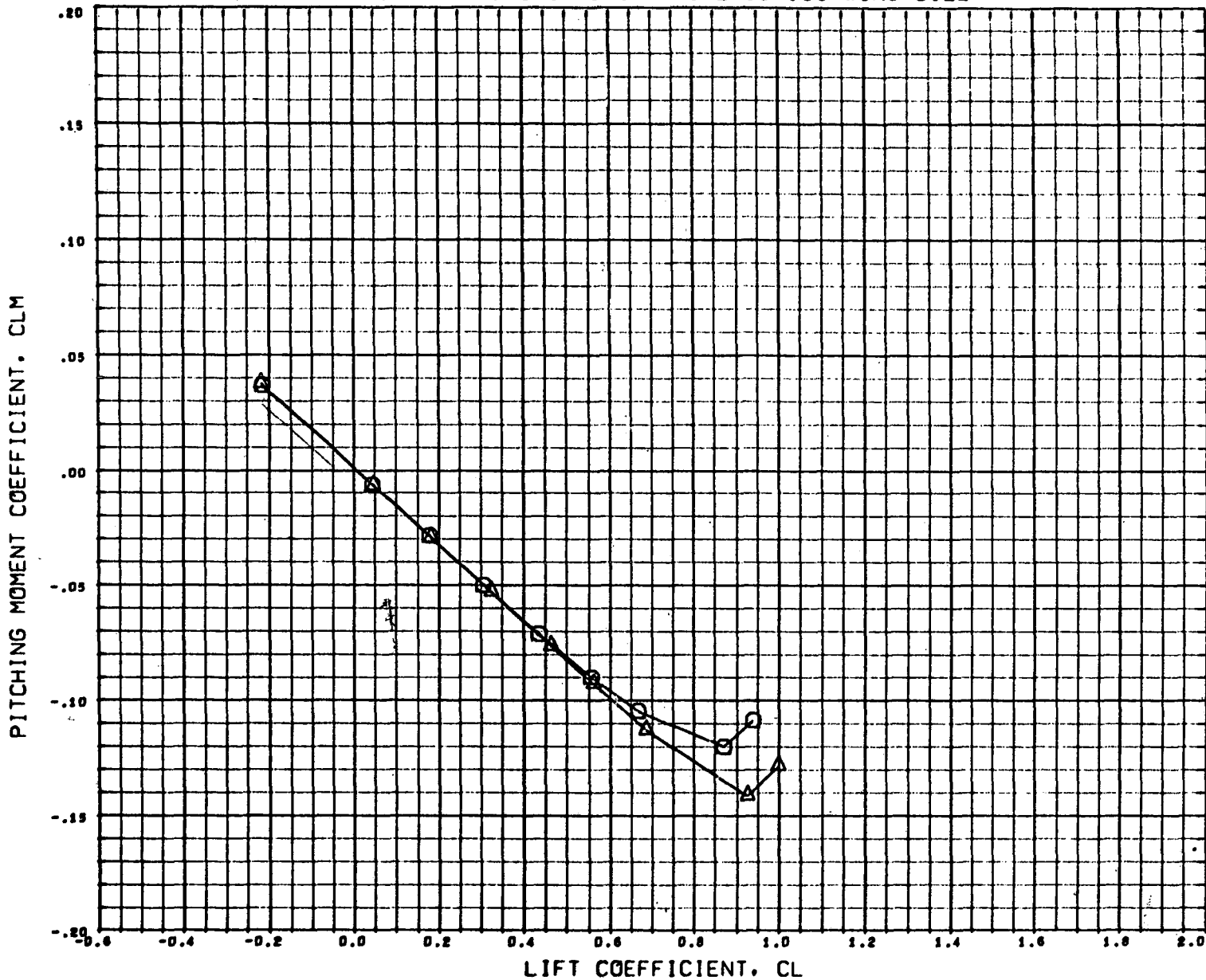
DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (RN3085) NSRDC-321D, MSFC/LMSC BOOSTER B1V1W1
 (RN3061) NSRDC-321D, MSFC/LMSC BOOSTER B1V2W1


ELEVTR AILRON RUDDER
 0.000 0.000 0.000
 0.000 0.000

REFERENCE INFORMATION
 SREF 1.3550 80. FT.
 LREF 3.4530 FEET
 BREF 3.4530 FEET
 XMRP 2.5950 FEET
 YMRP 0.0000 FEET
 ZMRP 0.0187 FEET
 SCALE 0.0150 SCALE

MACH 1.002

LMSC/HREC BOOSTER STUDIES-LONGITUDINAL CHARACTERISTICS-WING SIZE



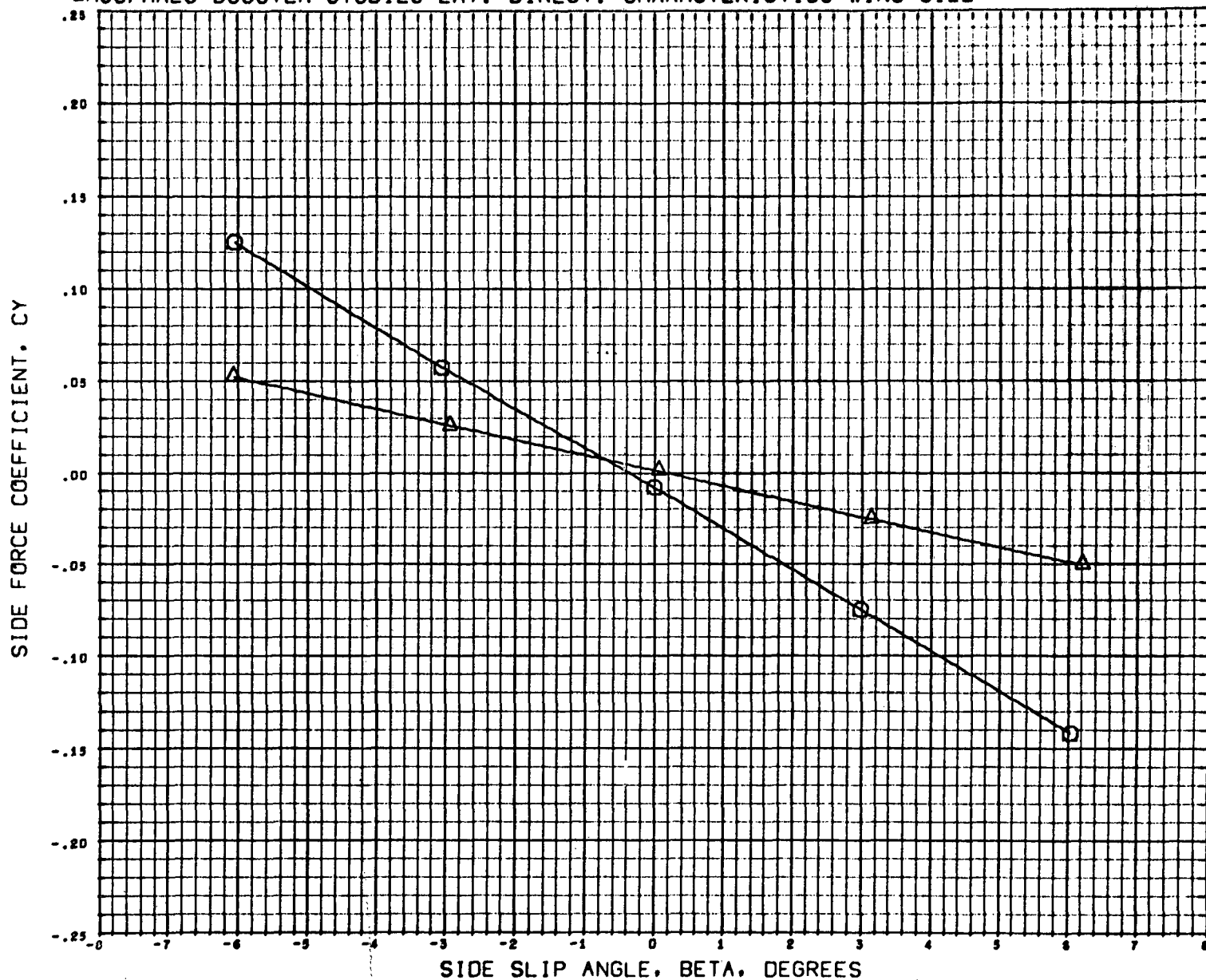
DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (RN3083)  NSRDC-3210, NSFC/LMSC BOOSTER B1V1W1
 (RN3081) NSRDC-3210, NSFC/LMSC BOOSTER B1V2W1

ELEVTR AILRON RUDDER
 0.000 0.000 0.000
 0.000 0.000

REFERENCE INFORMATION
 SREF 1.3550 SQ. FT.
 LREF 3.4530 FEET
 BREF 3.4530 FEET
 XHRP 2.5950 FEET
 YHRP 0.0000 FEET
 ZHRP 0.0187 FEET
 SCALE 0.0150 SCALE

MACH 1.125

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS-WING SIZE



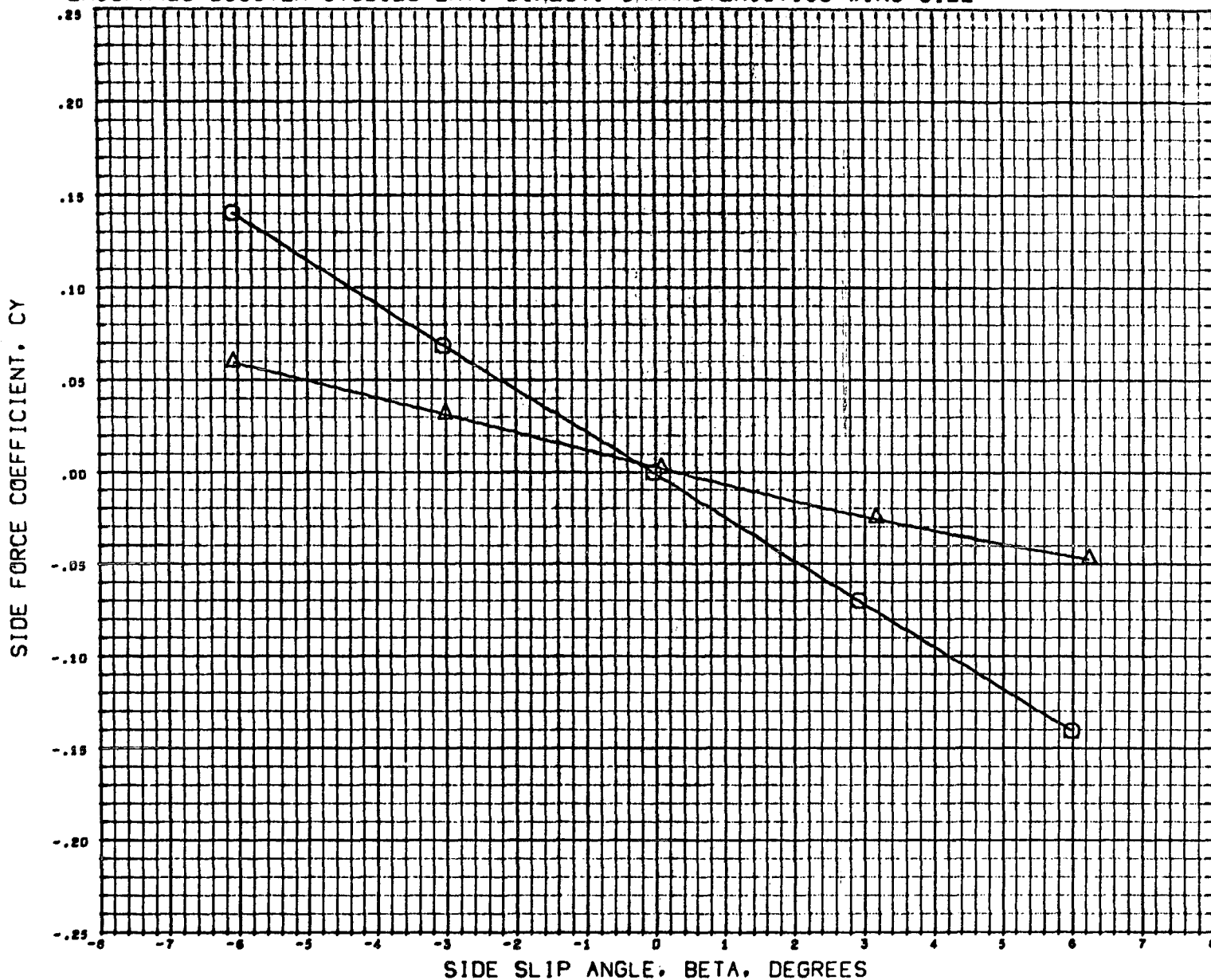
DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (RN3066) Q NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1
 (RN3062) A NSRDC-3210,MSFC/LMSC BOOSTER B1V2W1

ALPHA RUDDER CANARD ELEVTR
 -0.093 0.000
 0.024

REFERENCE INFORMATION
 SREF 1.3550 SQ.FT.
 LREF 3.4530 FEET
 BREF 3.4530 FEET
 XMRP 2.3950 FEET
 YMRP 0.0000 FEET
 ZMRP 0.0187 FEET
 SCALE 0.0150 SCALE

MACH 0.698

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS-WING SIZE



DATA SET SYMBOL
(RN3066) Q
(RN3062) A

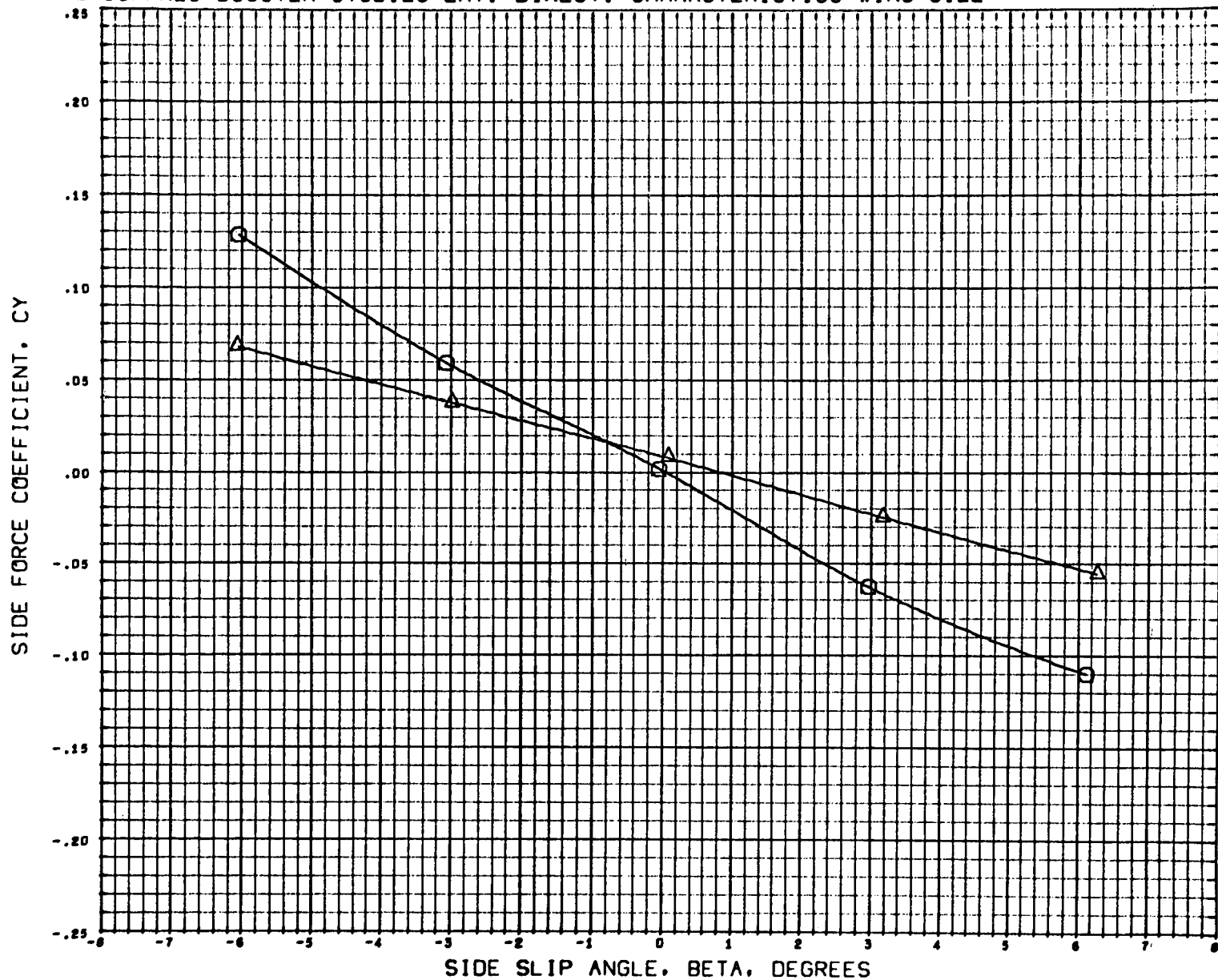
CONFIGURATION DESCRIPTION
NSRDC-3210, MSFC/LMSC BOOSTER B1V1W1
NSRDC-3210, MSFC/LMSC BOOSTER B1V2W1


ALPHA RUDDER CANARD ELEVTR
-0.093 0.000
0.024

REFERENCE INFORMATION
SREF 1.3550 SQ. FT.
LREF 3.4530 FEET
BREF 3.4530 FEET
XMRP 2.3950 FEET
YMRP 0.0000 FEET
ZMRP 0.0187 FEET
SCALE 0.0150 SCALE

MACH 0.797

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS-WING SIZE



DATA SET SYMBOL
(R3066) 
(R3062)

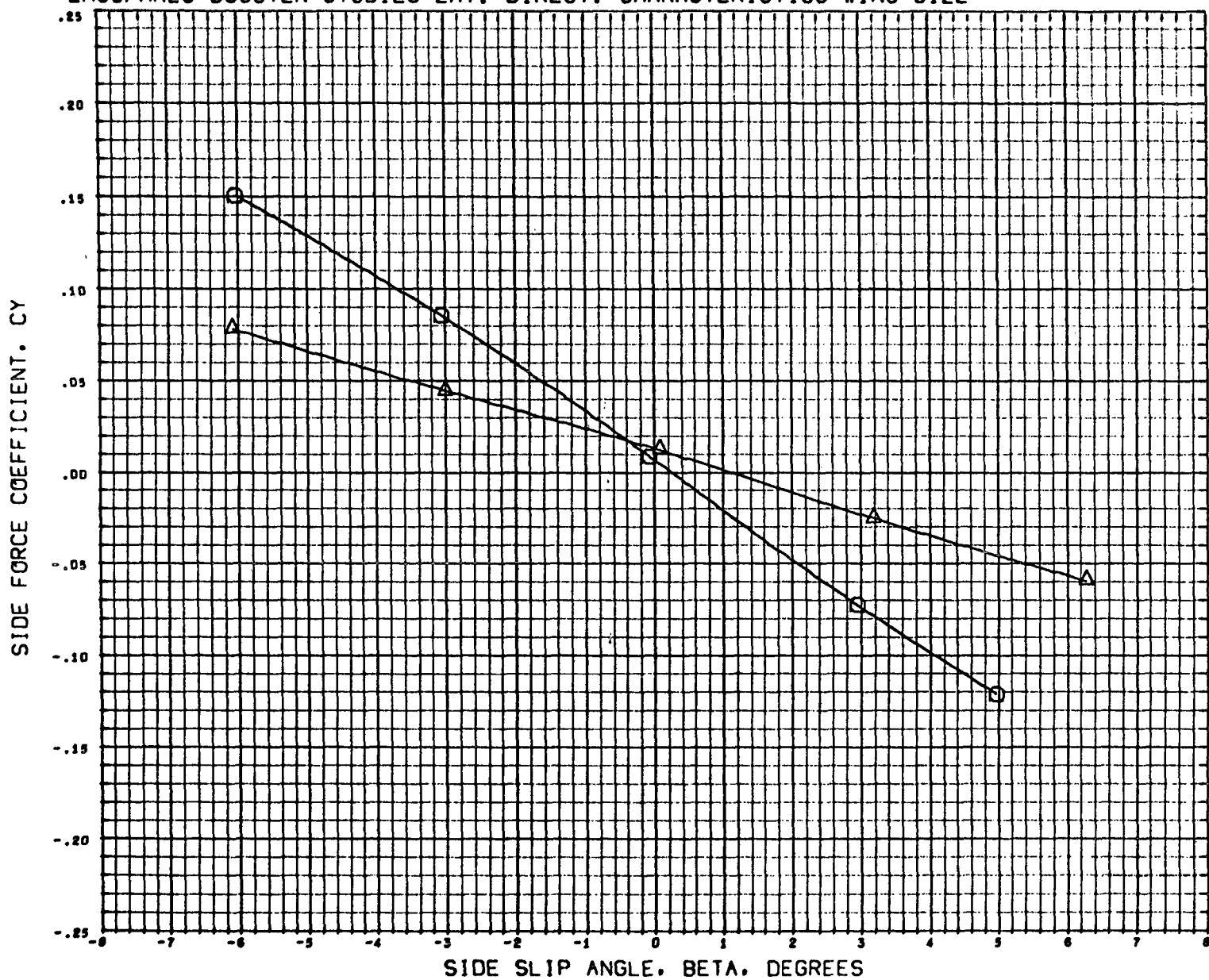
CONFIGURATION DESCRIPTION
NSRDC-3210, MSFC/LMSC BOOSTER B1V1W1
NSRDC-3210, MSFC/LMSC BOOSTER B1V2W1

ALPHA -0.093
RUDDER 0.000
CANARD
ELEVTR 0.000

REFERENCE INFORMATION
SREF 1.3550 SQ. FT.
LREF 3.4530 FEET
BREF 3.4530 FEET
XMRP 2.5950 FEET
YMRP 0.0000 FEET
ZMRP 0.0167 FEET
SCALE 0.0150 SCALE

MACH 0.900

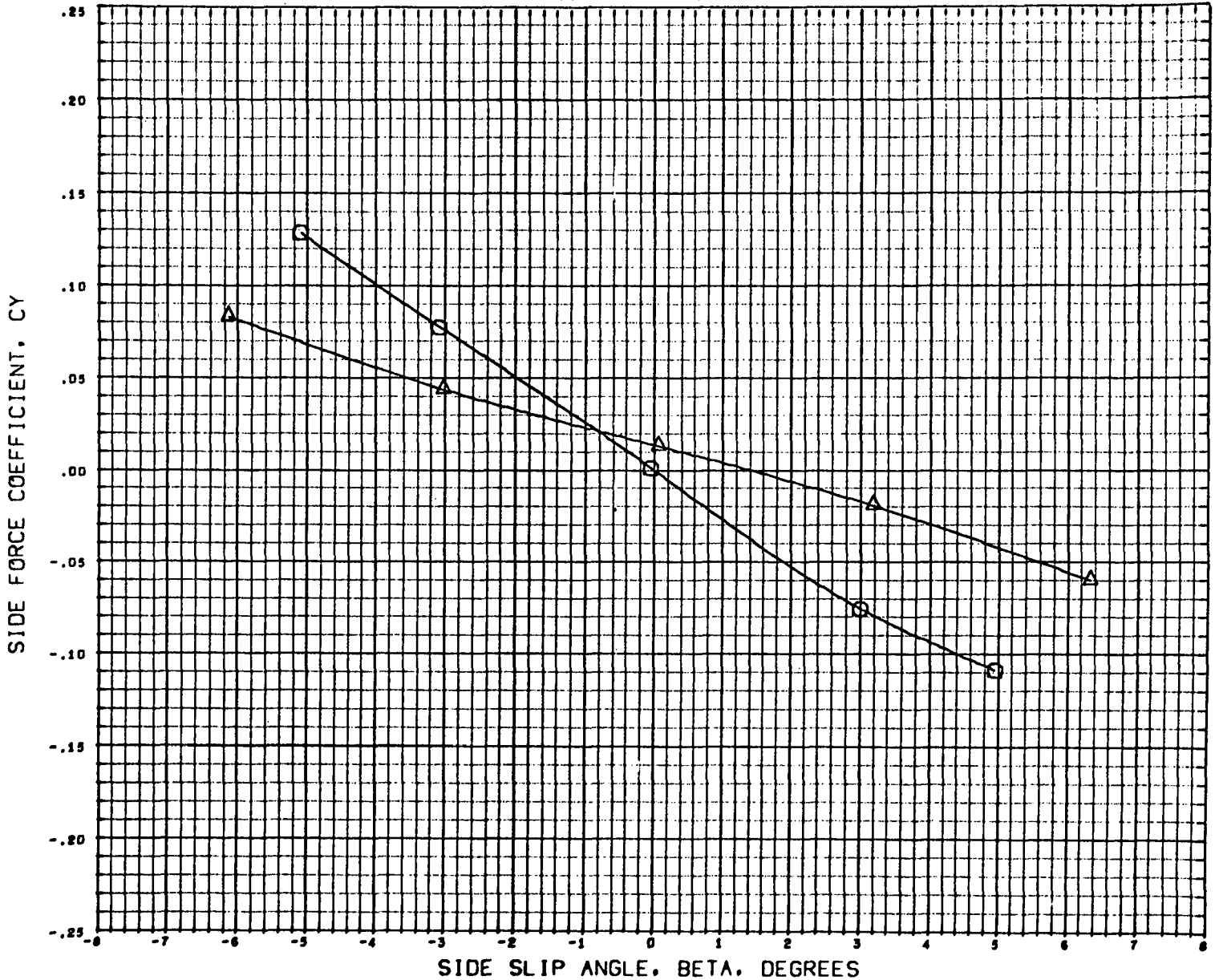
LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS-WING SIZE





DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(RN3066)	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	-0.093	0.000		0.000	BREF 1.3550 SQ.FT.
(RN3062)	NSRDC-3210,MSFC/LMSC BOOSTER B1V2W1	0.024				LREF 3.4530 FEET
						BREF 3.4530 FEET
						XMRP 2.5950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0107 FEET
						SCALE 0.0150 SCALE

MACH 1.001

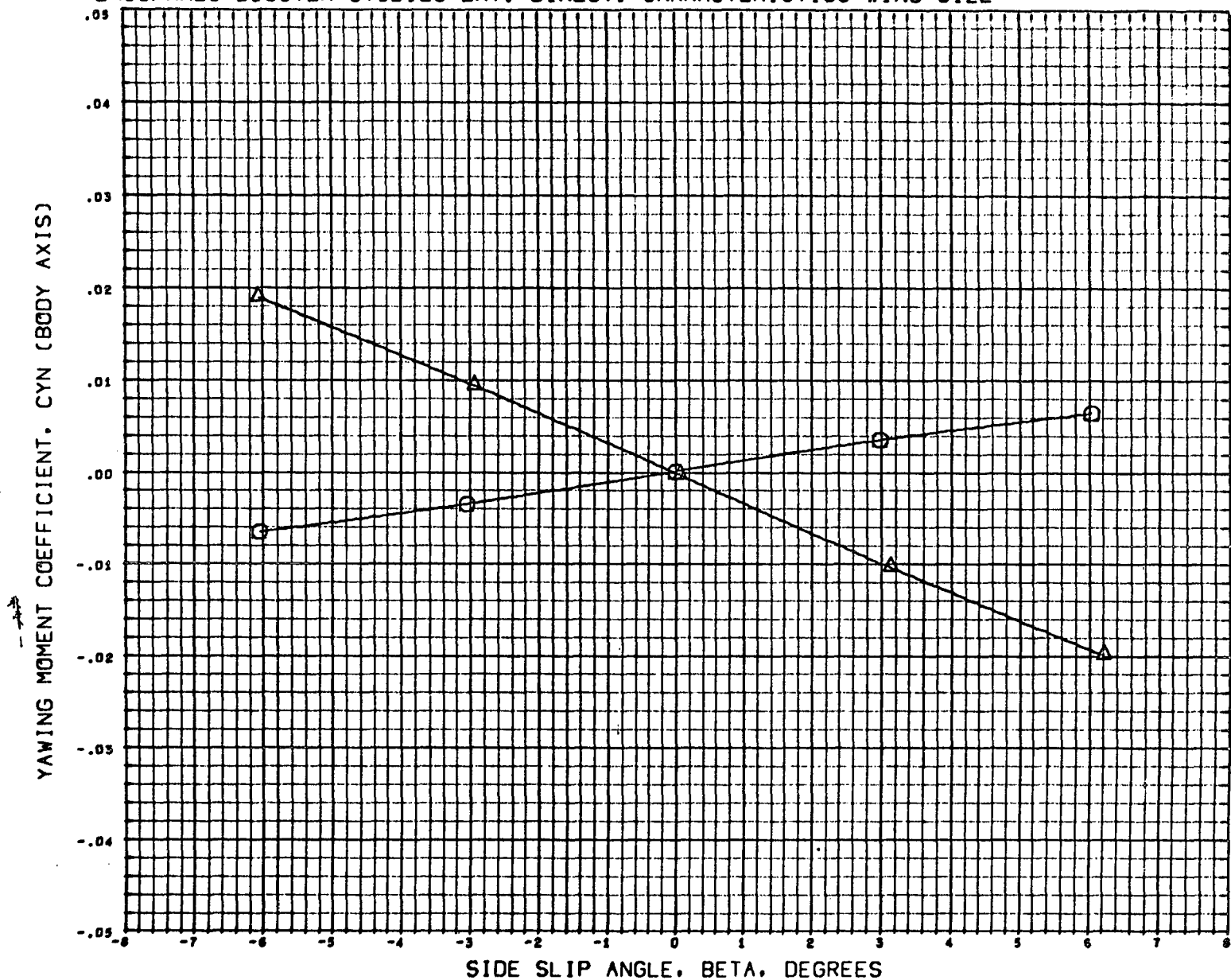
LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS-WING SIZE



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(RN3088) 	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	-0.093	0.000		0.000	SREF 1.3550 SQ.FT.
(RN3082) 	NSRDC-3210,MSFC/LMSC BOOSTER B1V2W1	0.024				LREF 3.4530 FEET
						BREF 3.4530 FEET
						XMRP 2.5930 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0107 FEET
						SCALE 0.0150 SCALE

MACH 1.126

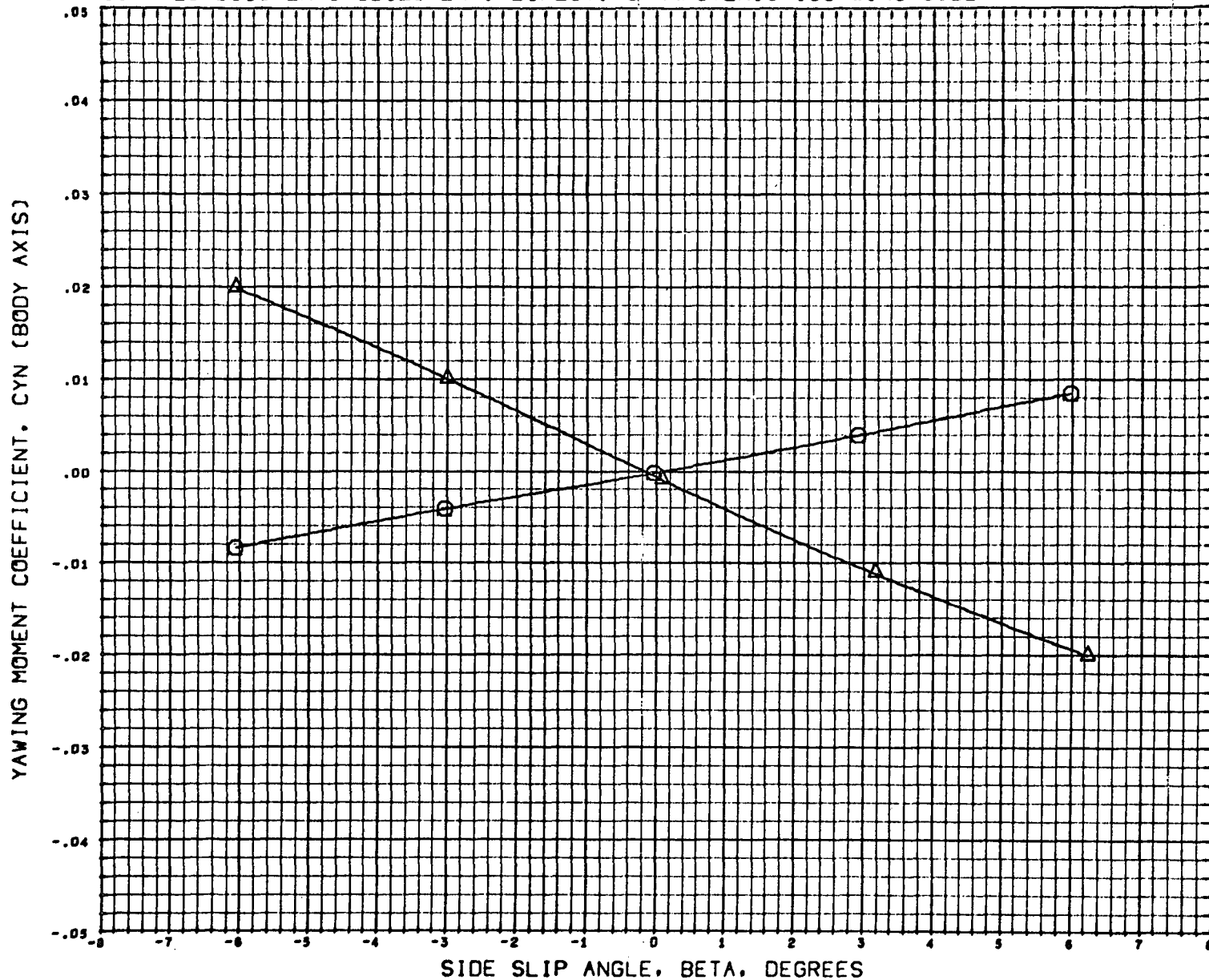
LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS-WING SIZE



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(RN3066)	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	-0.093	0.000		0.000	SREF	1.3550 SQ.FT.
(RN3062)	NSRDC-3210,MSFC/LMSC BOOSTER B1V2W1	0.024				LREF	3.4530 FEET
						BREF	3.4530 FEET
						XMRP	2.5930 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.698

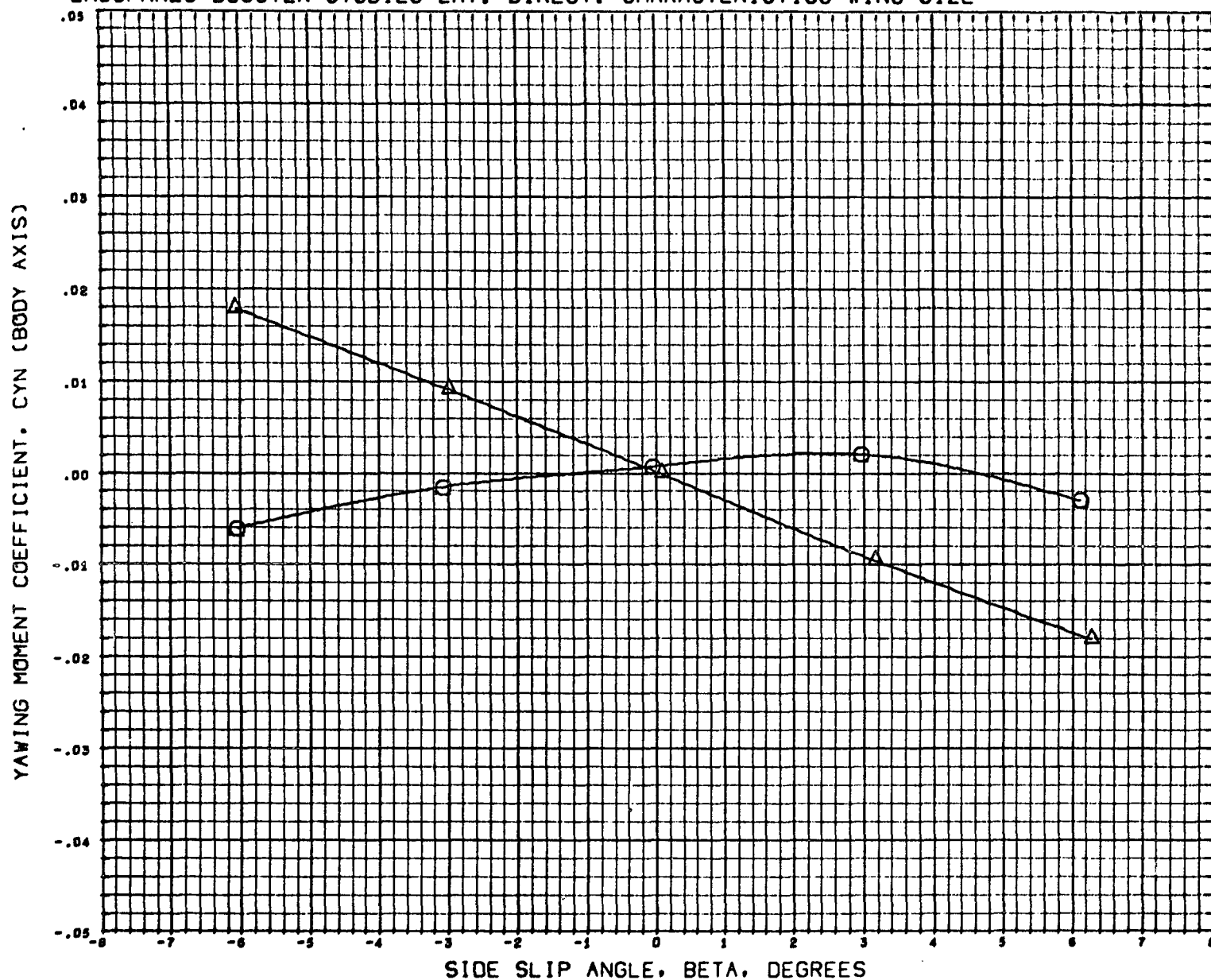
LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS-WING SIZE



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(RN3066)	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	-0.093	0.000		0.000	SREF 1.3550 80.FT.
(RN3062)	NSRDC-3210,MSFC/LMSC BOOSTER B1V2W1	0.024				LREF 3.4530 FEET
						BREF 3.4530 FEET
						XMRP 2.3950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.797

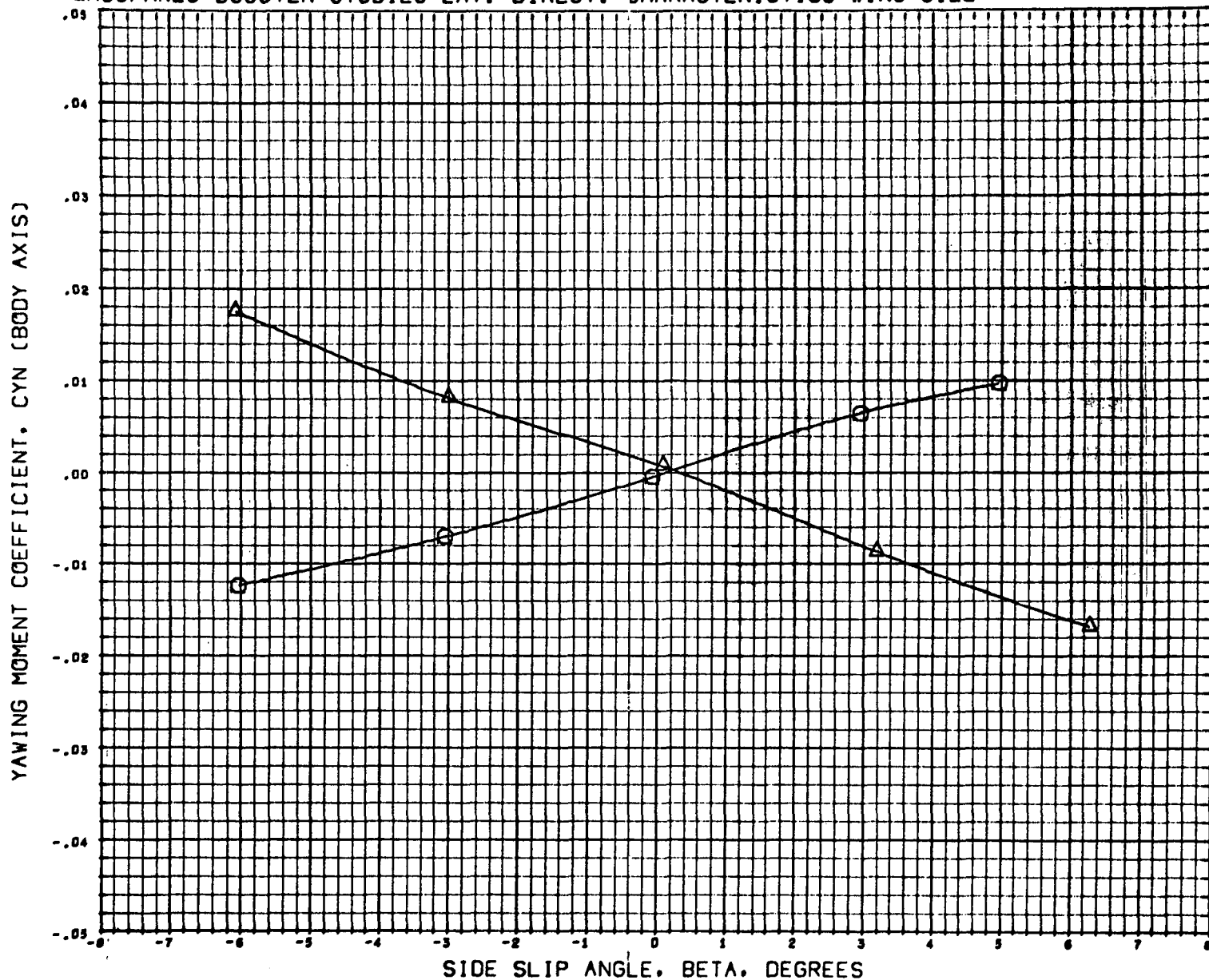
LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS-WING SIZE



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION	
(RN3066)	NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1	-0.093	0.000		0.000	SREF	1.3550 SQ.FT.
(RN3062)	NSRDC-3210,MSFC/LMSC BOOSTER B1V2W1	0.024				LREF	3.4530 FEET
						BREF	3.4530 FEET
						XMRP	2.3950 FEET
						YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.900

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS-WING SIZE



DATA SET SYMBOL
(RNS066)
(RNS062)



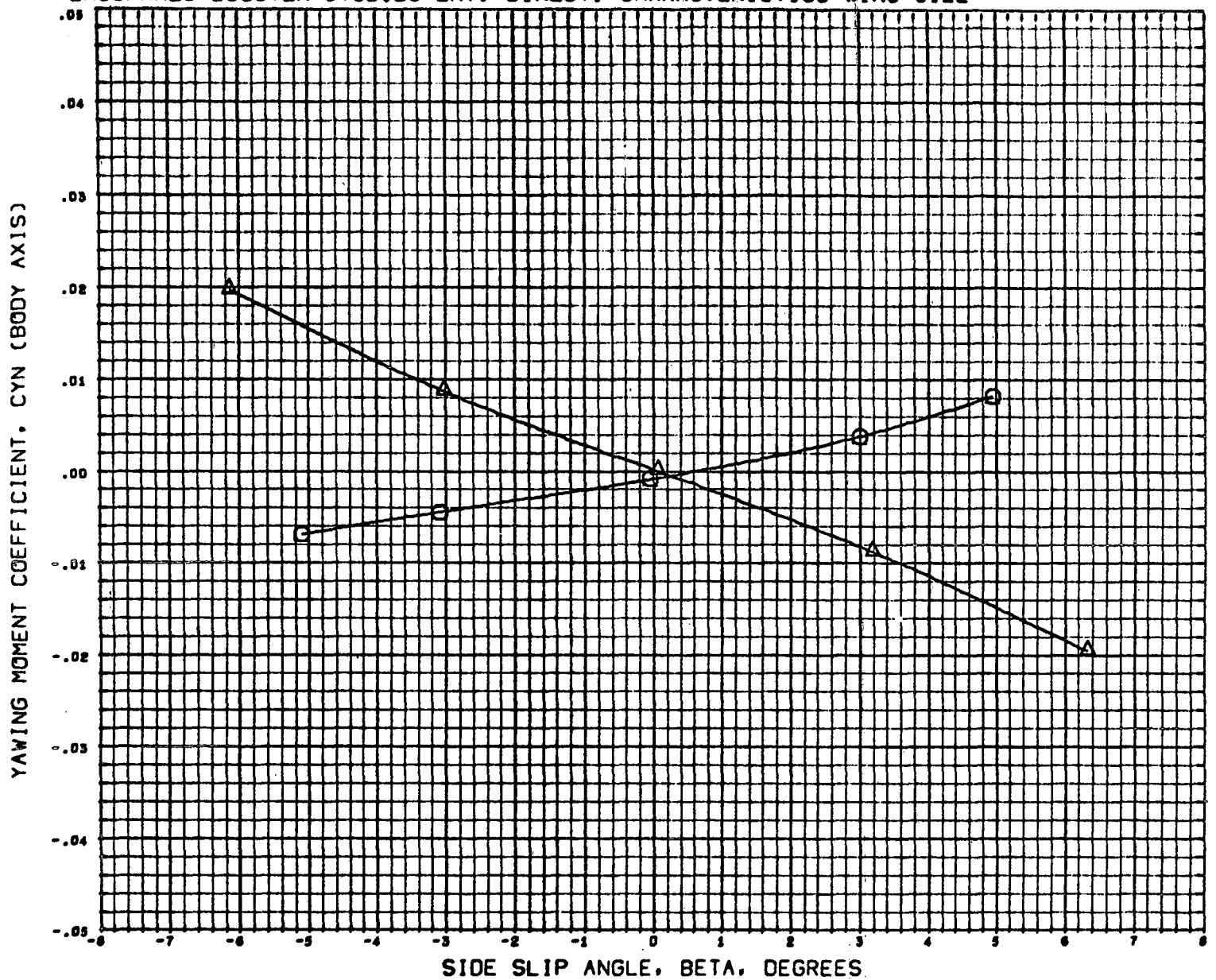
CONFIGURATION DESCRIPTION
NSRDC-3210,MSFC/LMSC BOOSTER 81V1W1
NSRDC-3210,MSFC/LMSC BOOSTER 81V2W1



ALPHA RUDDER CANARD ELEVTR
-0.093 0.000 0.000
0.024

REFERENCE INFORMATION
SREF 1.3550 80.FT.
LREF 3.4530 FEET
BREF 3.4530 FEET
XMRP 2.3950 FEET
YMRP 0.0000 FEET
ZMRP 0.0187 FEET
SCALE 0.0150 SCALE

MACH 1.001

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS-WING SIZE



DATA SET SYMBOL
(R3066) 
(R3062) 

CONFIGURATION DESCRIPTION
NSRDC-3210, MSFC/LMSC BOOSTER B1V1W1
NSRDC-3210, MSFC/LMSC BOOSTER B1V2W1

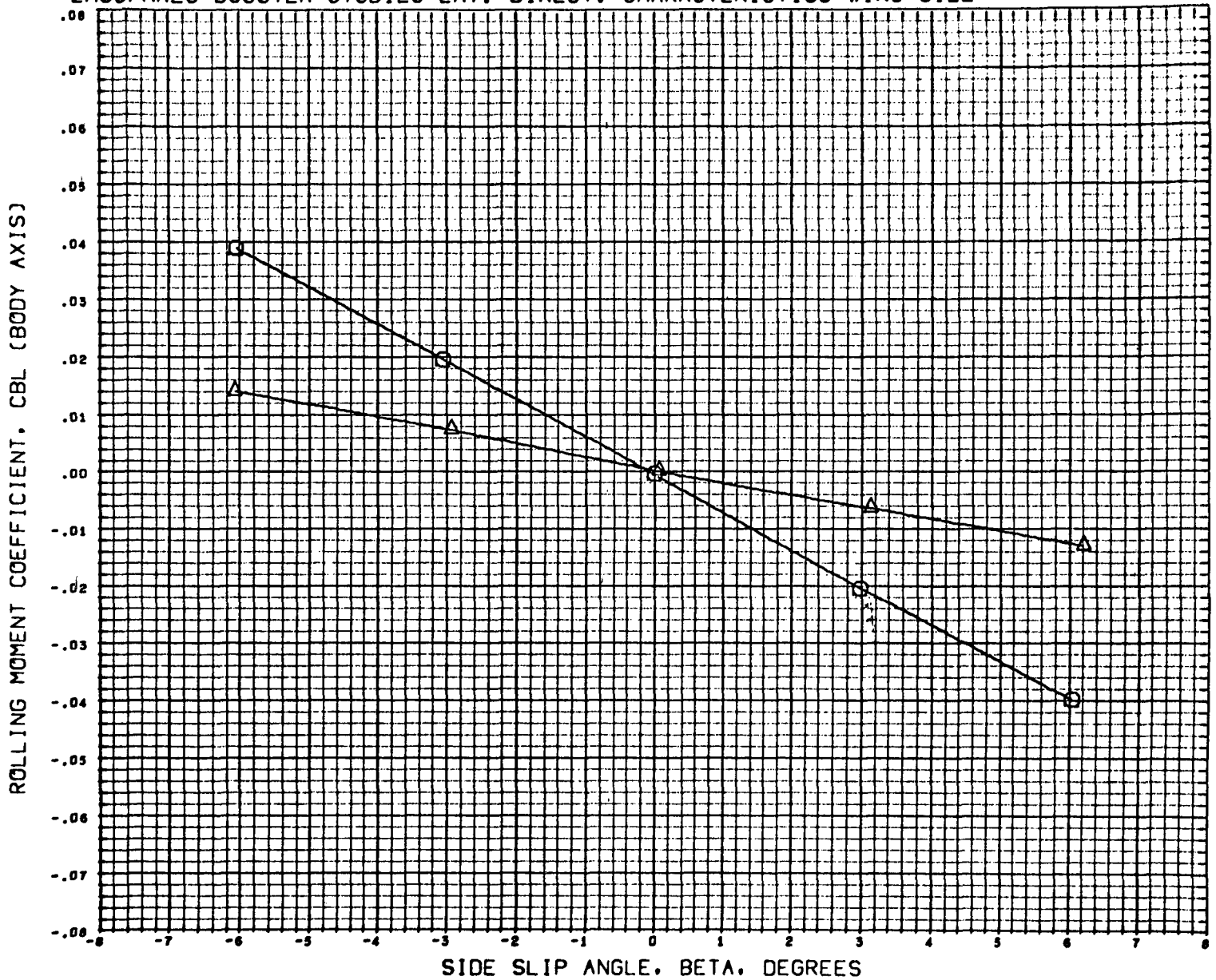
ALPHA RUDDER CANARD
-0.093 0.000
0.024

ELEVTR
0.000

REFERENCE INFORMATION
SREF 1.3550 80.FT.
LREF 3.4530 FEET
BREF 3.4530 FEET
XWRP 2.5950 FEET
YWRP 0.0000 FEET
ZWRP 0.0167 FEET
SCALE 0.0150 SCALE

MACH 1.126

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS-WING SIZE



DATA SET SYMBOL
(R3066)
(R3062)



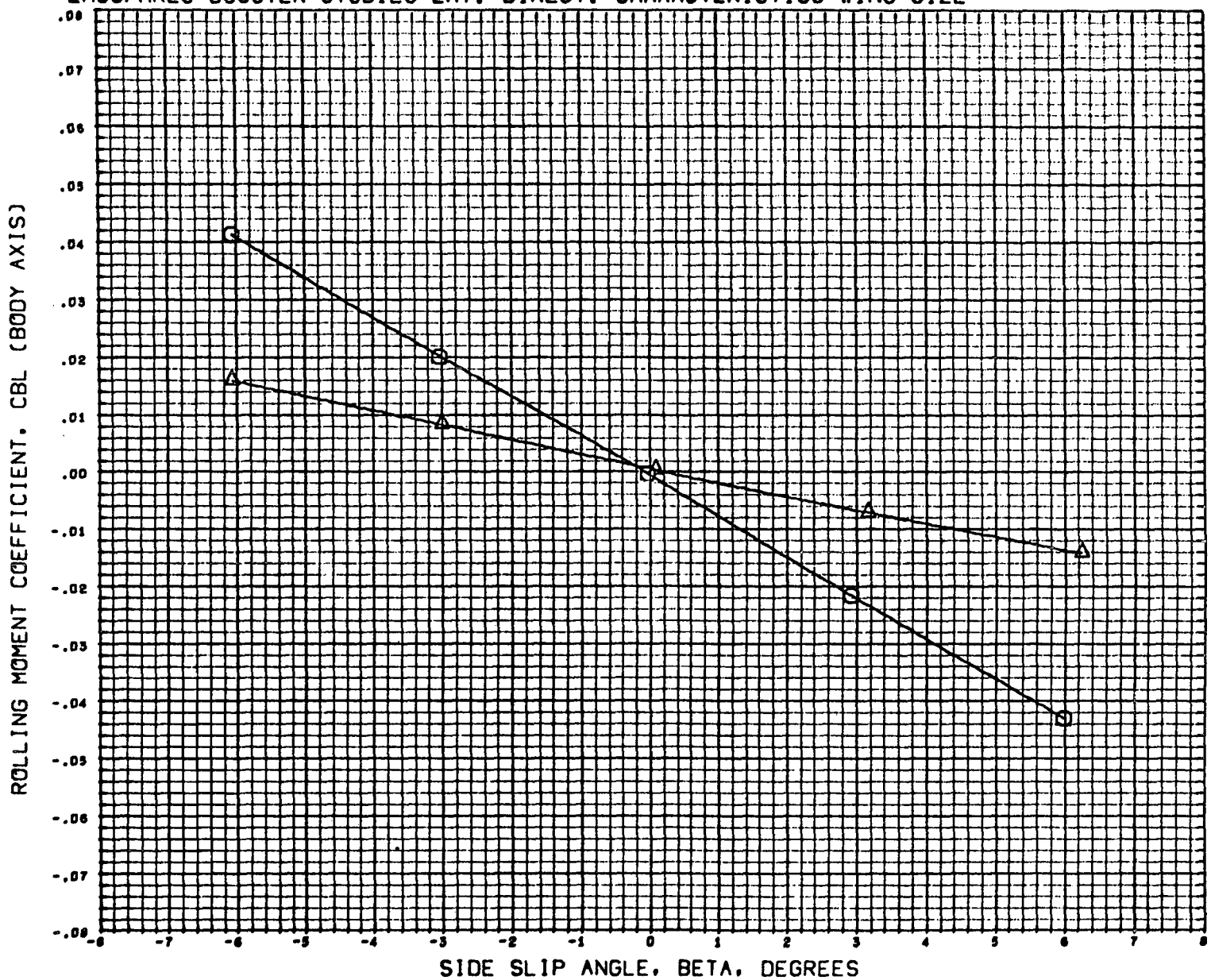
CONFIGURATION DESCRIPTION
NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1
NSRDC-3210,MSFC/LMSC BOOSTER B1V2W1

ALPHA -0.093
RUDDER 0.000
CANARD
ELEVTR 0.000

REFERENCE INFORMATION
SREF 1.3550 SQ.FT.
LREF 3.4530 FEET
BREF 3.4530 FEET
XMRP 2.5950 FEET
YMRP 0.0000 FEET
ZMRP 0.0167 FEET
SCALE 0.0150 SCALE

MACH 0.898

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS-WING SIZE



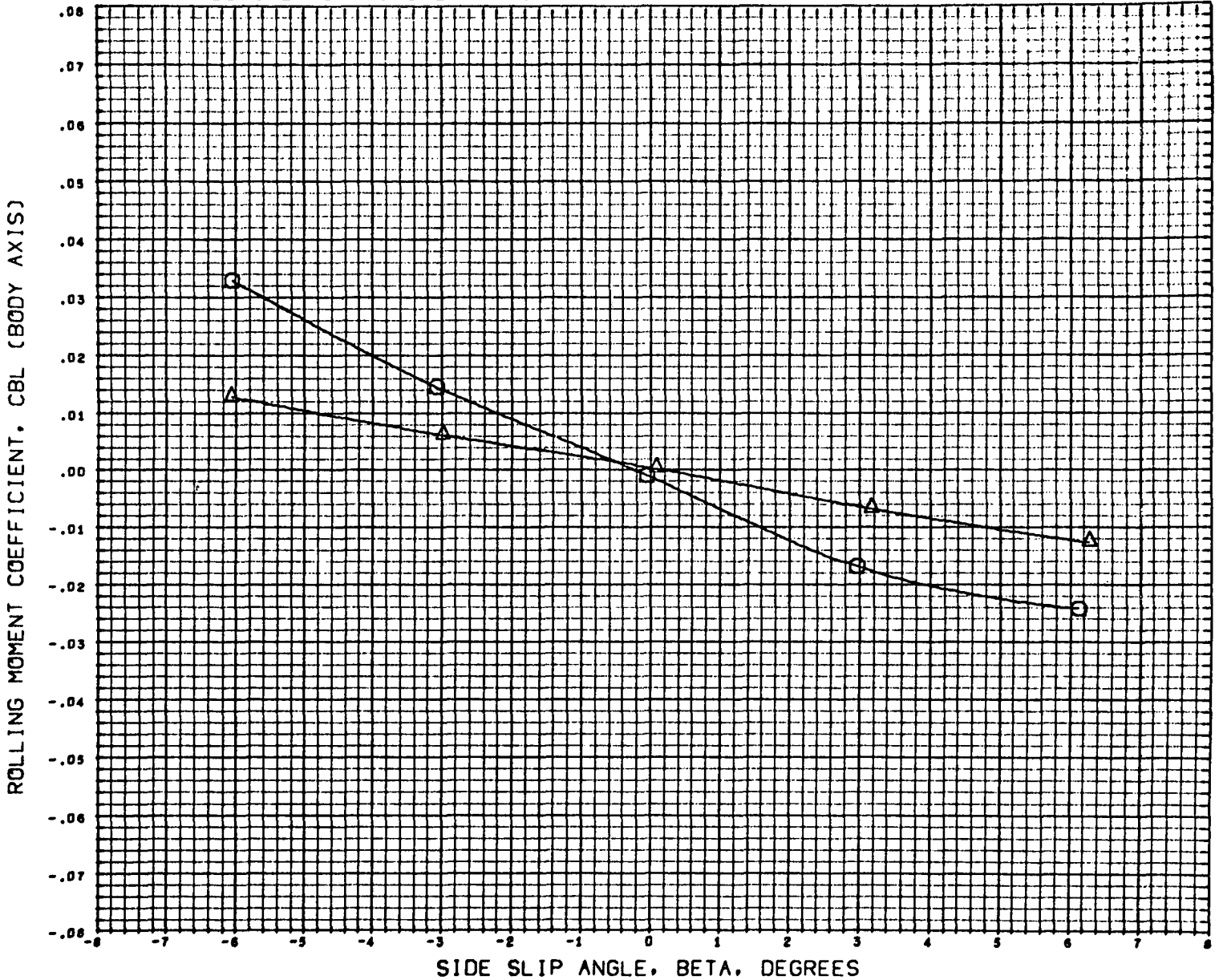
DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (RN3086) Q NSRDC-321D,MSFC/LMSC BOOSTER 81V1W1
 (RN3082) A NSRDC-321D,MSFC/LMSC BOOSTER 81V2W1



ALPHA RUDDER CANARD ELEVTR
 -0.093 0.000 0.000
 0.024

REFERENCE INFORMATION
 SREF 1.3550 SQ.FT.
 LREF 3.4530 FEET
 QREF 3.4530 FEET
 XMRP 2.5950 FEET
 YMRP 0.0000 FEET
 ZMRP 0.0167 FEET
 SCALE 0.0150 SCALE

MACH 0.797

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS-WING SIZE



DATA SET SYMBOL
(RN3066) 
(RN3062) 

CONFIGURATION DESCRIPTION
NSRDC-3210, MSFC/LMSC BOOSTER B1V1W1
NSRDC-3210, MSFC/LMSC BOOSTER B1V2W1

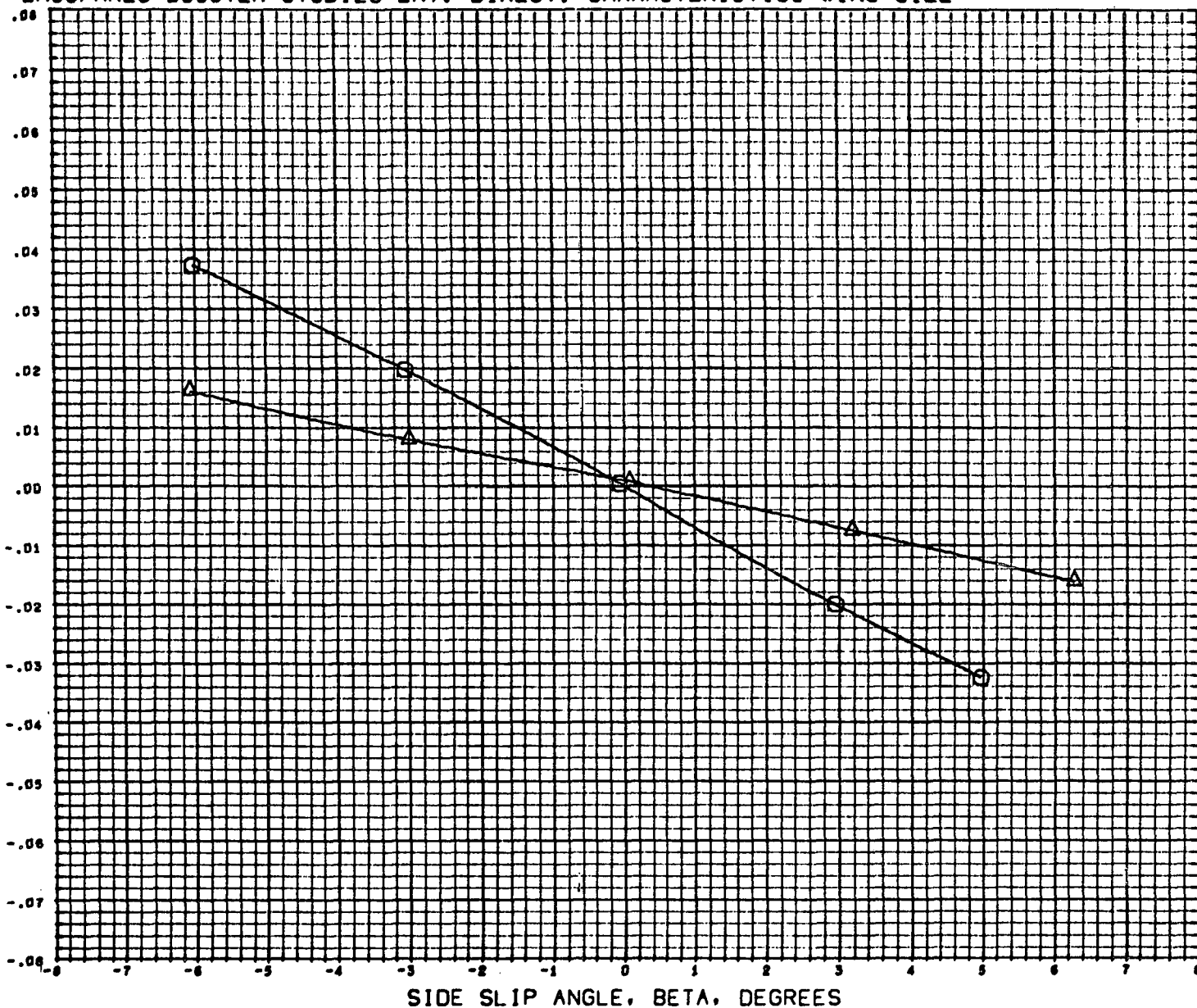
ALPHA -0.093
RUDDER 0.000
CANARD
ELEVTR 0.000



REFERENCE INFORMATION
SREF 1.3550 SQ. FT.
LREF 3.4530 FEET
BREF 3.4530 FEET
XMRP 2.5950 FEET
YMRP 0.0000 FEET
ZMRP 0.0187 FEET
SCALE 0.0150 SCALE

MACH 0.900

LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS-WING SIZE

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)



DATA SET SYMBOL
(RN3085) 
(RN3082) 

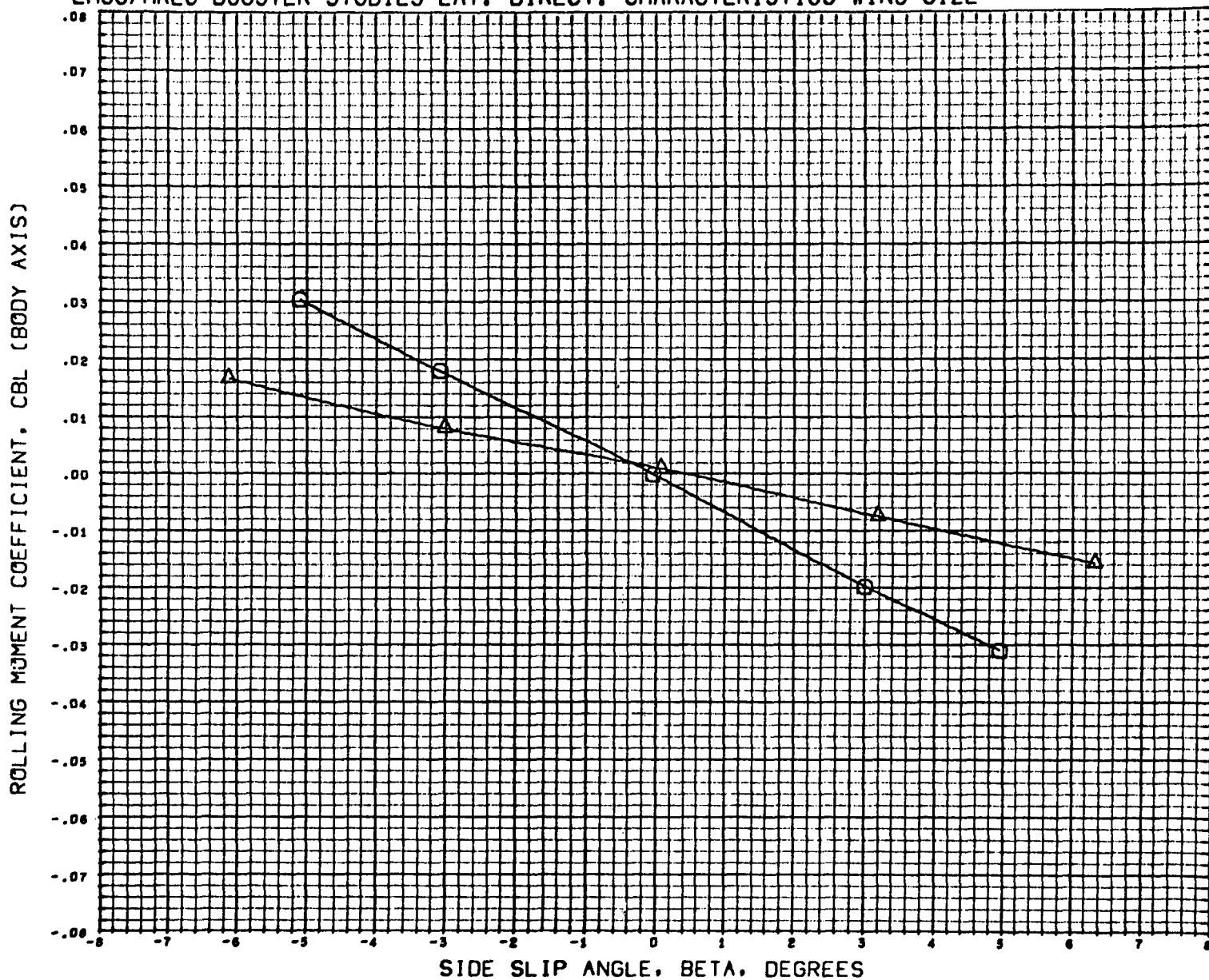
CONFIGURATION DESCRIPTION
NSRDC-3210,MSFC/LMSC BOOSTER B1V1W1
NSRDC-3210,MSFC/LMSC BOOSTER B1V2W1

ALPHA -0.093
RUDDER 0.000
CANARD
ELEVTR 0.000

REFERENCE INFORMATION
SREF 1.3550 SQ.FT.
LREF 3.4530 FEET
OREF 3.4530 FEET
XNRP 2.5950 FEET
YNRP 0.0000 FEET
ZNRP 0.0187 FEET
SCALE 0.0150 SCALE

MACH 1.001

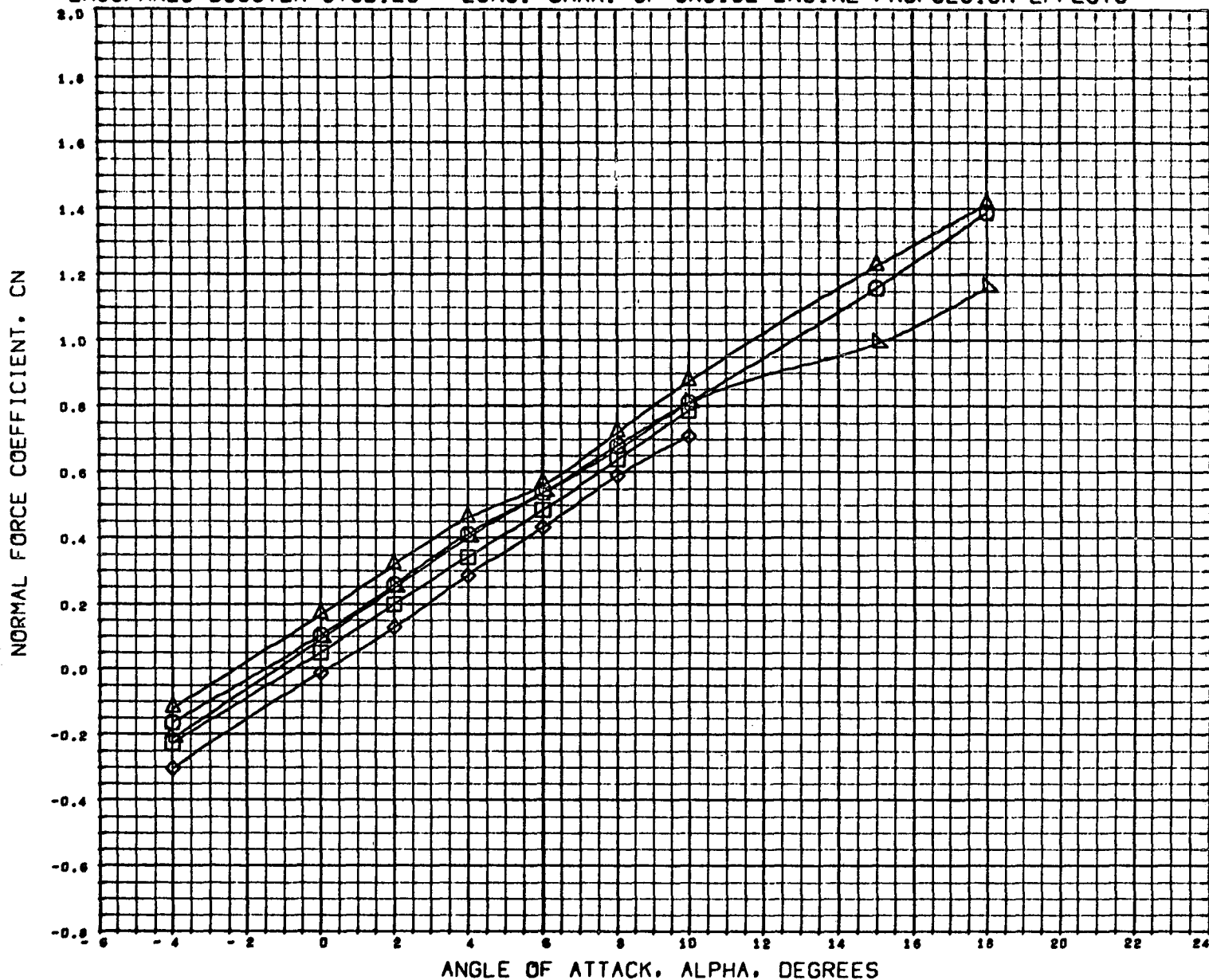
LMSC/HREC BOOSTER STUDIES-LAT.-DIRECT. CHARACTERISTICS-WING SIZE



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	CANARD	ELEVTR	REFERENCE INFORMATION
(RN3066)	NSRDC-3210, MSFC/LHSC BOOSTER B1V1W1	-0.093	0.000		0.000	SREF 1.3550 SQ. FT.
(RN3062)	NSRDC-3210, MSFC/LHSC BOOSTER B1V2W1	0.024				LREF 3.4530 FEET
						SREF 3.4530 FEET
						XMRP 2.3950 FEET
						YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0130 SCALE

MACH 1.126

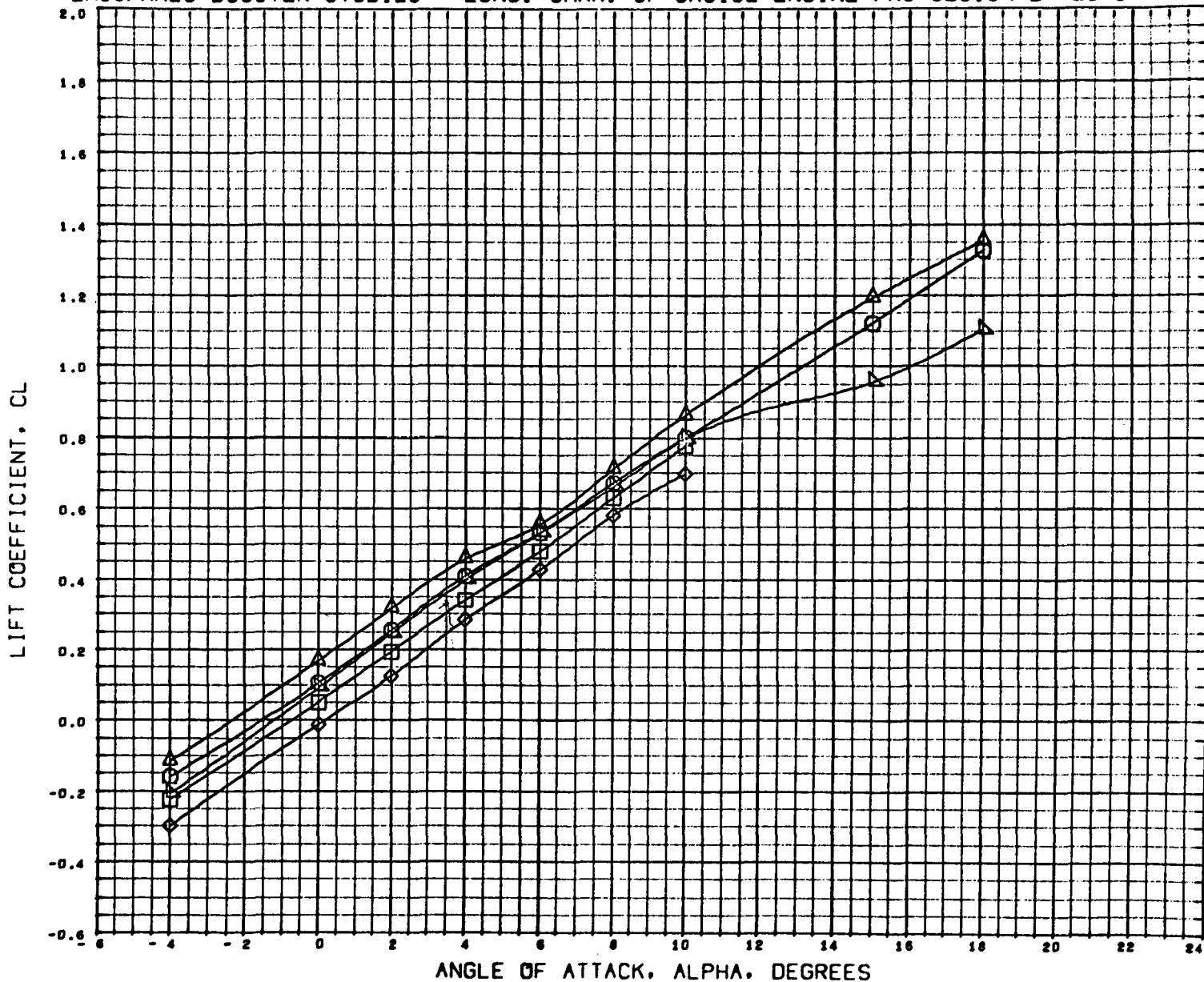
LMSC/HREC BOOSTER STUDIES - LONG. CHAR. OF CRUISE ENGINE PROPULSION EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION		
(AN300A)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3P	0.753	0.000	0.000	0.000	SREF	1.3550	80.FT.
(AN300E)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3	0.763	0.000	0.000	0.000	LREF	3.4530	FEET
(AN300I)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H4	0.780	0.000	0.000	0.000	BREF	3.4530	FEET
(AN300M)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H2	0.728	0.000	0.000	0.000	XMRP	2.5950	FEET
(AN300B)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H1	0.734	0.000	0.000	0.000	YMRP	0.0000	FEET
						ZMRP	0.0187	FEET
						SCALE	0.0150	SCALE

MACH 0.400

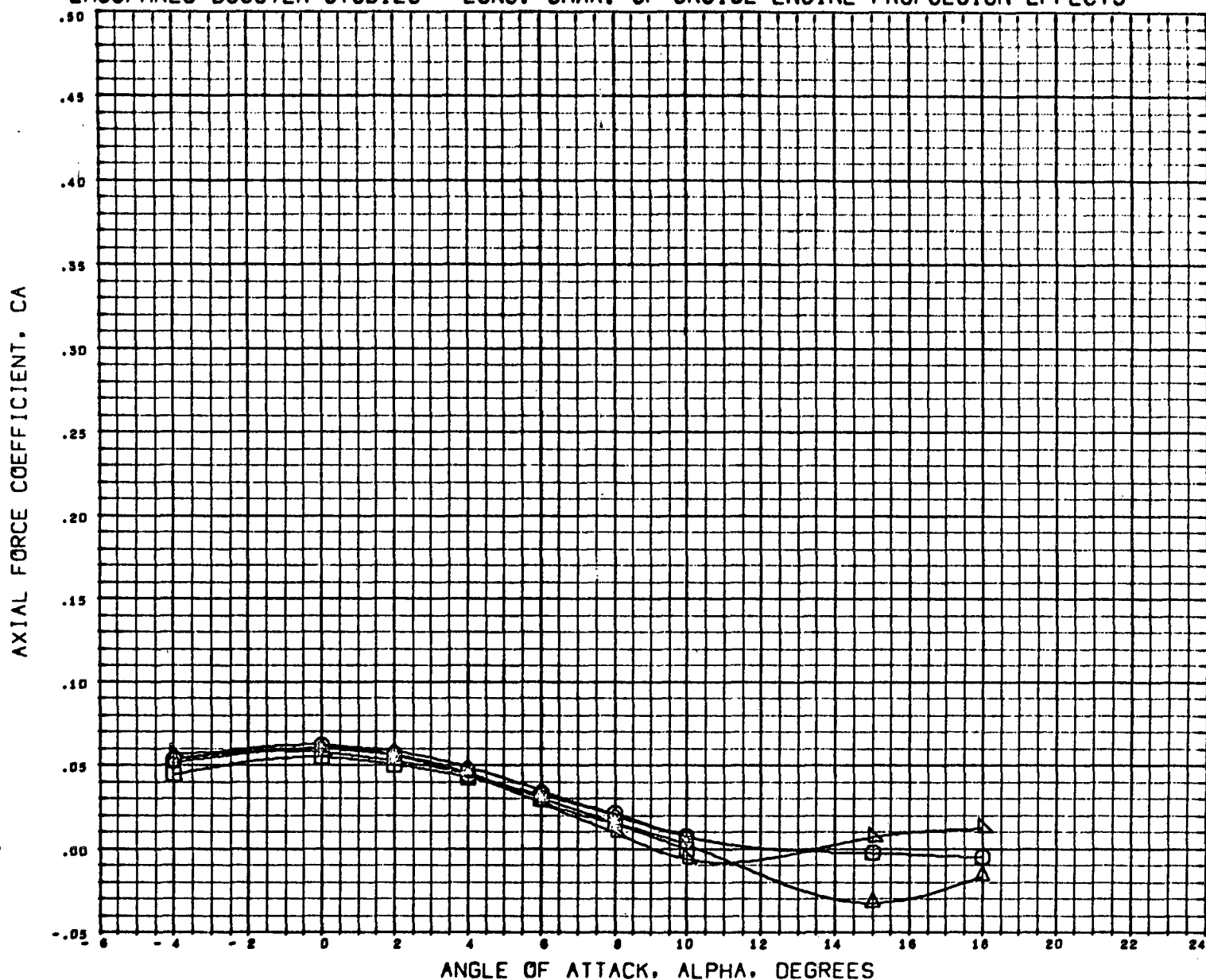
LMSC/HREC BOOSTER STUDIES - LONG. CHAR. OF CRUISE ENGINE PROPULSION EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	ATLRON	RUDDER	REFERENCE INFORMATION	
(AN300A)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3P	0.753	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(AN300E)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3	0.763	0.000	0.000	0.000	LREF	3.4530 FEET
(AN300I)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H4	0.780	0.000	0.000	0.000	BREF	3.4530 FEET
(AN300M)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H2	0.728	0.000	0.000	0.000	XMRP	2.5930 FEET
(AN300Q)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H1	0.734	0.000	0.000	0.000	YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.400

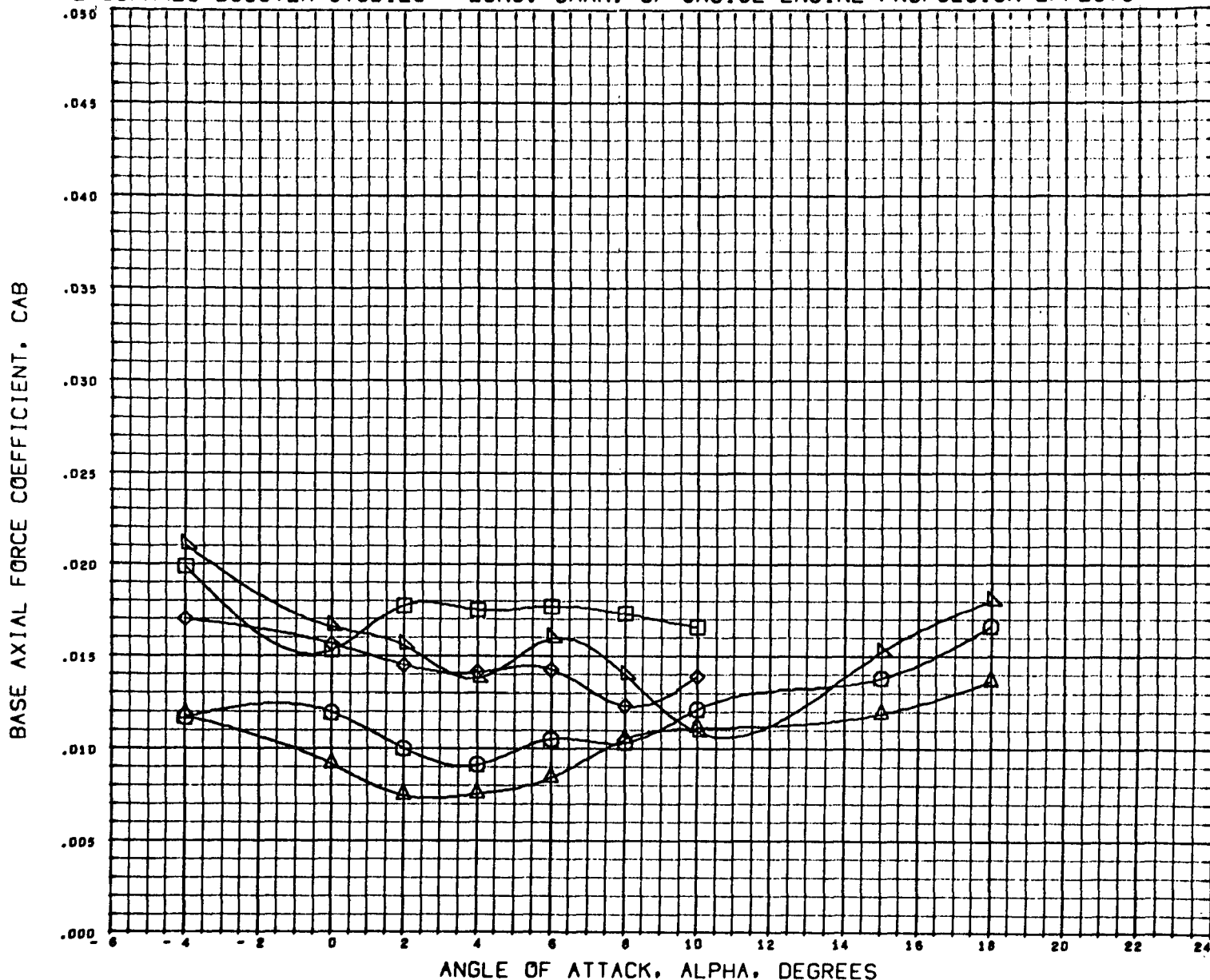
LMSC/HREC BOOSTER STUDIES - LONG. CHAR. OF CRUISE ENGINE PROPULSION EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300A)	NSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H3P	0.753	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(AN300E)	NSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H3	0.763	0.000	0.000	0.000	LREF	3.4530 FEET
(AN300I)	NSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H4	0.780	0.000	0.000	0.000	BREF	3.4530 FEET
(AN300H)	NSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H2	0.728	0.000	0.000	0.000	XMHP	2.5950 FEET
(AN300G)	NSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H1	0.734	0.000	0.000	0.000	YMHP	0.0000 FEET
						ZMHP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.400

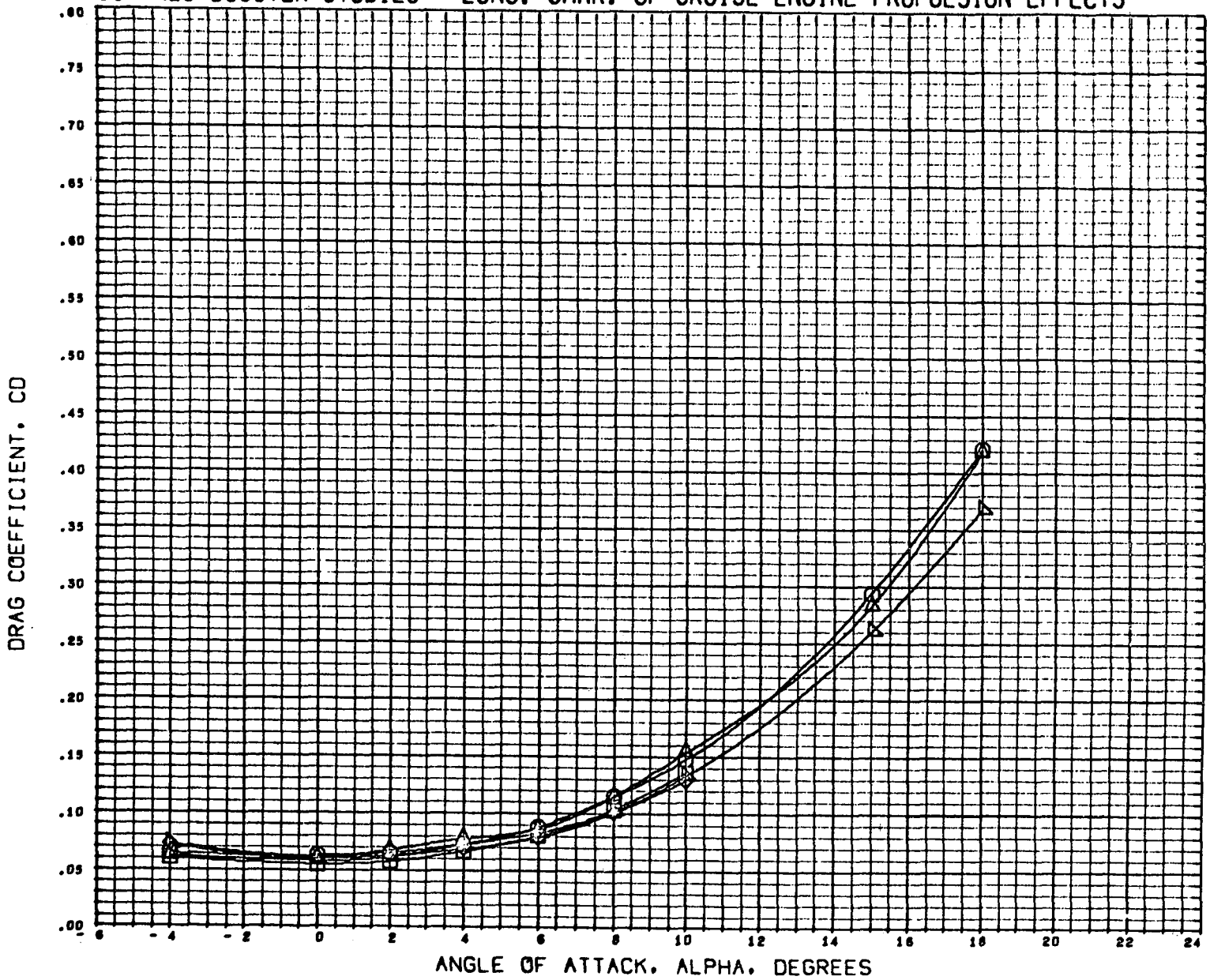
LMSC/HREC BOOSTER STUDIES - LONG. CHAR. OF CRUISE ENGINE PROPULSION EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300A)	NSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H3P	0.753	0.000	0.000	0.000	SREF	1.3550 SQ. FT.
(AN300E)	NSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H3	0.763	0.000	0.000	0.000	LREF	3.4530 FEET
(AN300I)	NSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H4	0.780	0.000	0.000	0.000	BREF	3.4530 FEET
(AN300M)	NSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H2	0.728	0.000	0.000	0.000	XMPP	2.9950 FEET
(AN300Q)	NSRDC-3210, MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H1	0.734	0.000	0.000	0.000	YMPP	0.0000 FEET
						ZMPP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.400

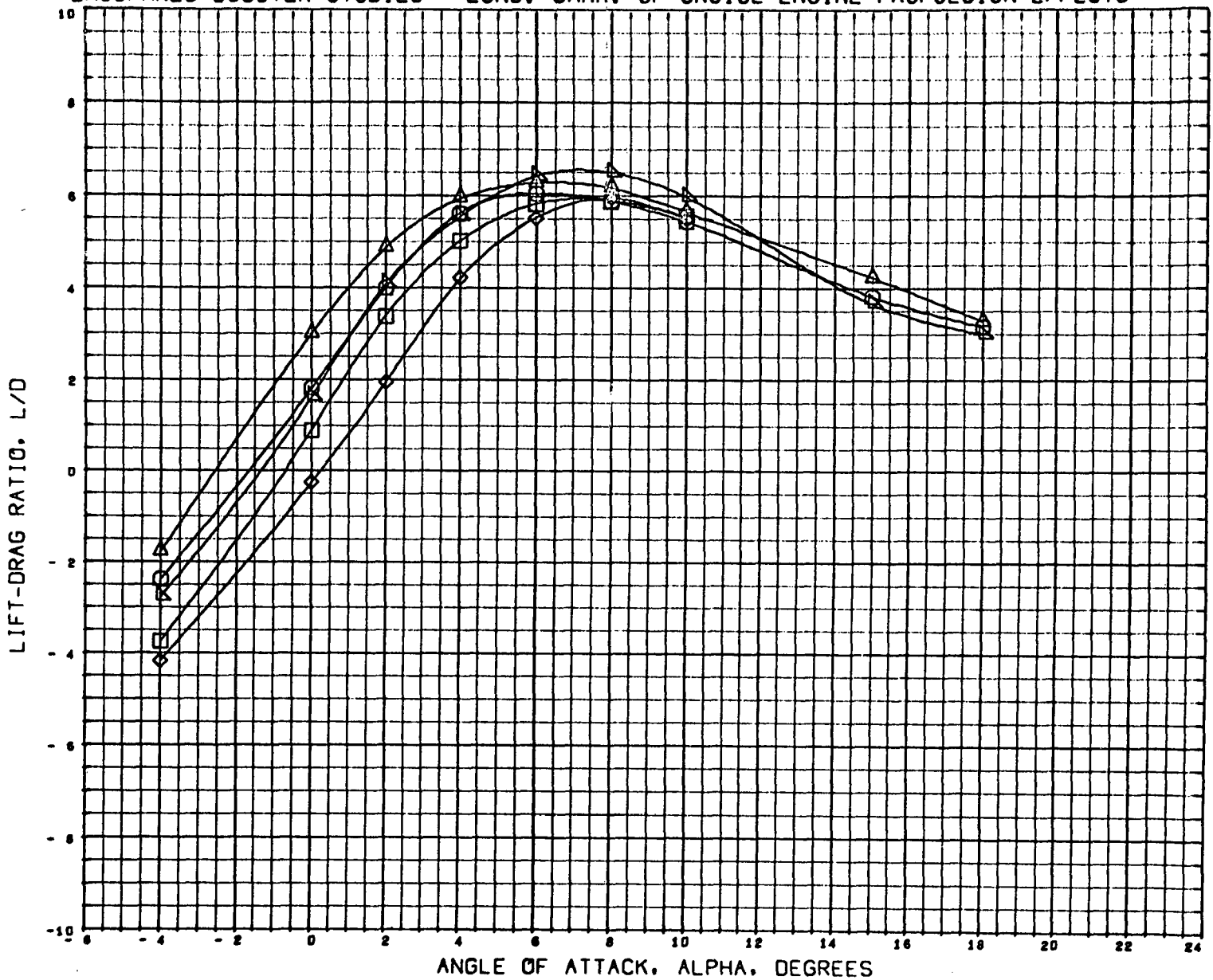
LMSC/HREC BOOSTER STUDIES - LONG. CHAR. OF CRUISE ENGINE PROPULSION EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300A)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3P	0.753	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(AN300E)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3	0.763	0.000	0.000	0.000	LREF	3.4330 FEET
(AN300I)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H4	0.780	0.000	0.000	0.000	BREF	3.4330 FEET
(AN300M)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H2	0.728	0.000	0.000	0.000	XMRP	2.5950 FEET
(AN3000)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H1	0.734	0.000	0.000	0.000	YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.400

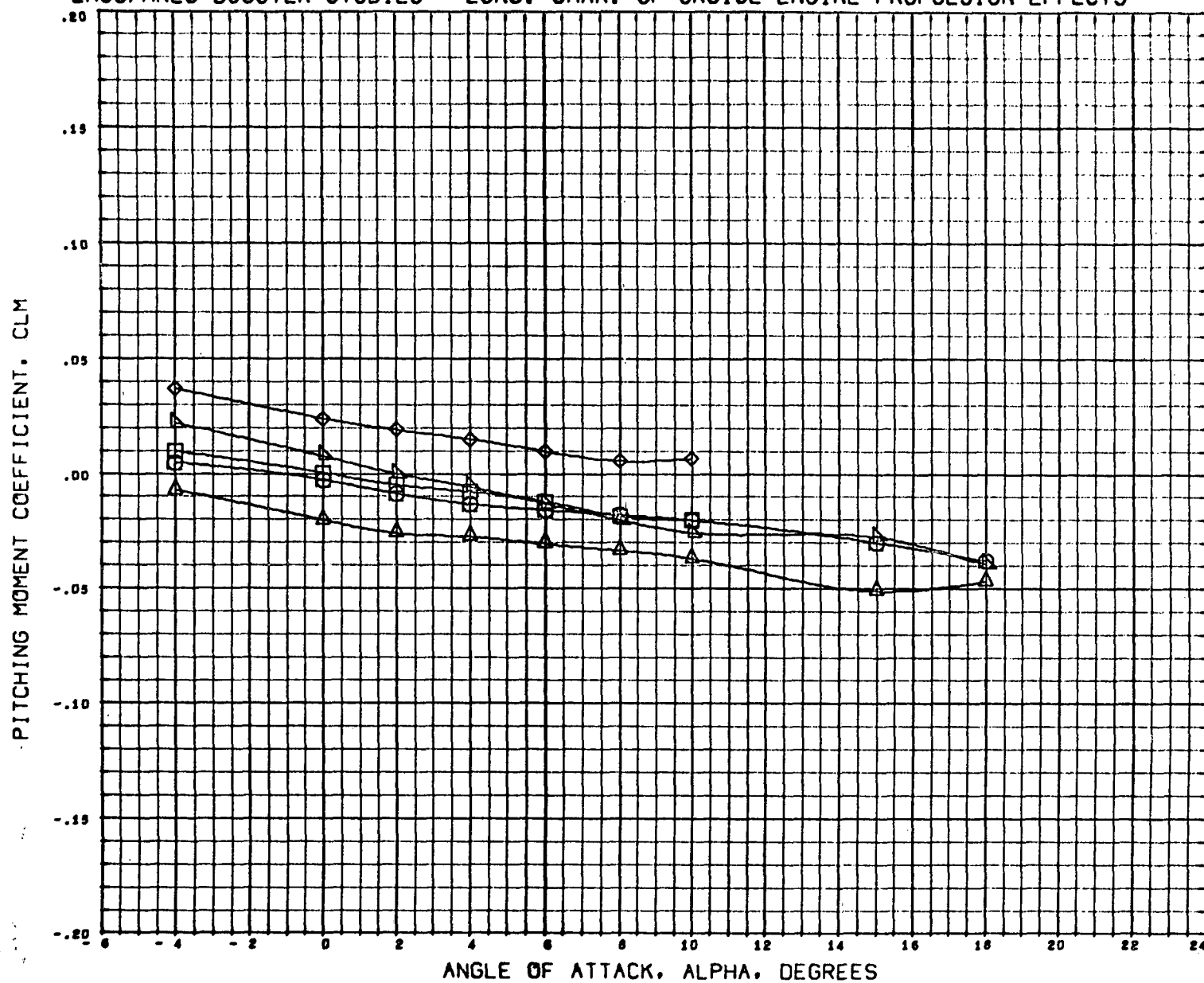
LMSC/HREC BOOSTER STUDIES - LONG. CHAR. OF CRUISE ENGINE PROPULSION EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300A)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3P	0.753	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(AN300E)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3	0.763	0.000	0.000	0.000	LREF	3.4330 FEET
(AN300I)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H4	0.760	0.000	0.000	0.000	BREF	3.4330 FEET
(AN300H)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H2	0.728	0.000	0.000	0.000	XMRP	2.3950 FEET
(AN300G)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H1	0.734	0.000	0.000	0.000	YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.400

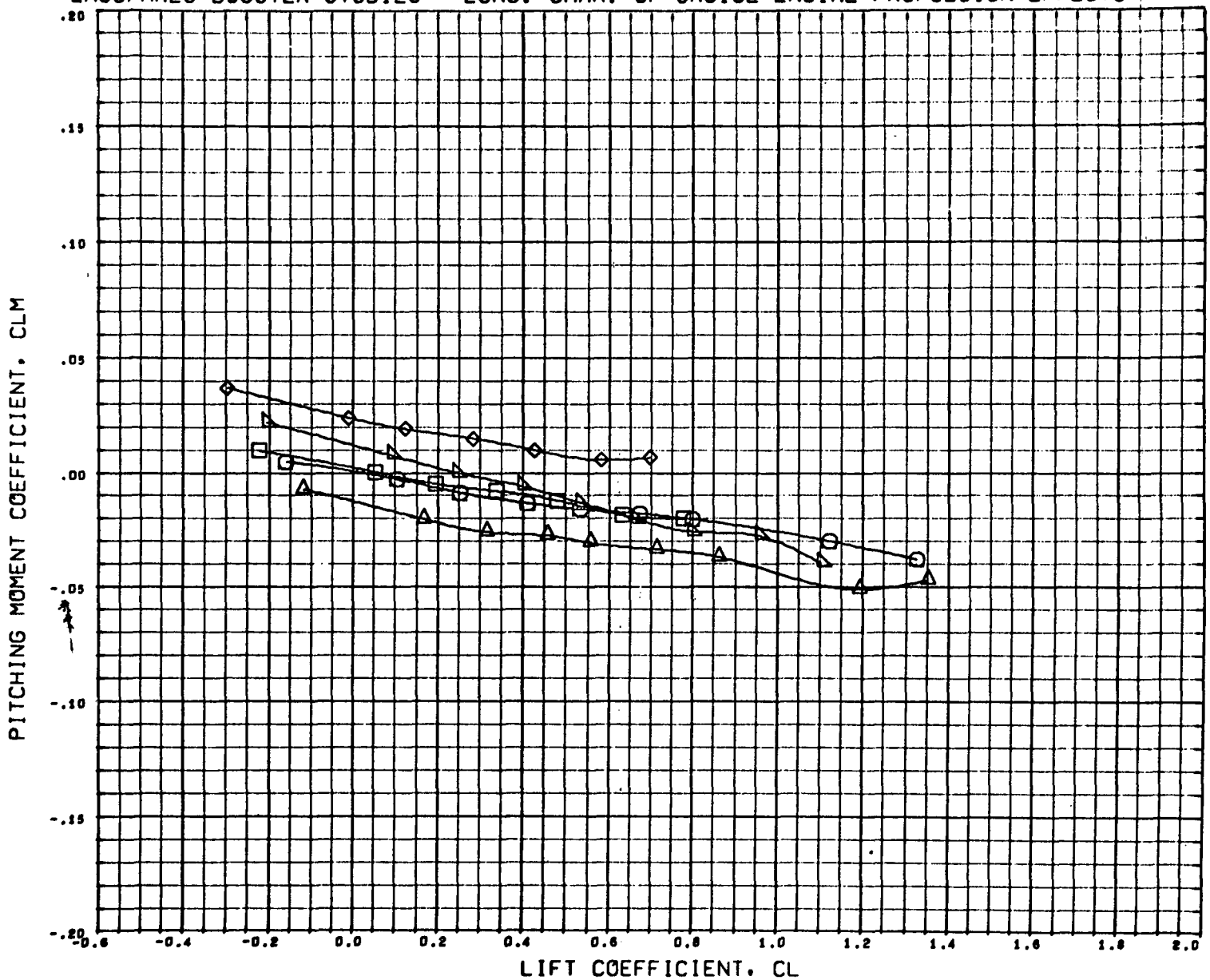
LMSC/HREC BOOSTER STUDIES - LONG. CHAR. OF CRUISE ENGINE PROPULSION EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION
(AN300A)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3P	0.753	0.000	0.000	0.000	SREF 1.3530 SQ.FT.
(AN300E)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3	0.763	0.000	0.000	0.000	LREF 3.4530 FEET
(AN300I)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H4	0.780	0.000	0.000	0.000	BREF 3.4530 FEET
(AN300M)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H2	0.728	0.000	0.000	0.000	XHRP 2.5950 FEET
(AN300Q)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H1	0.734	0.000	0.000	0.000	YHRP 0.0000 FEET
						ZHRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.400

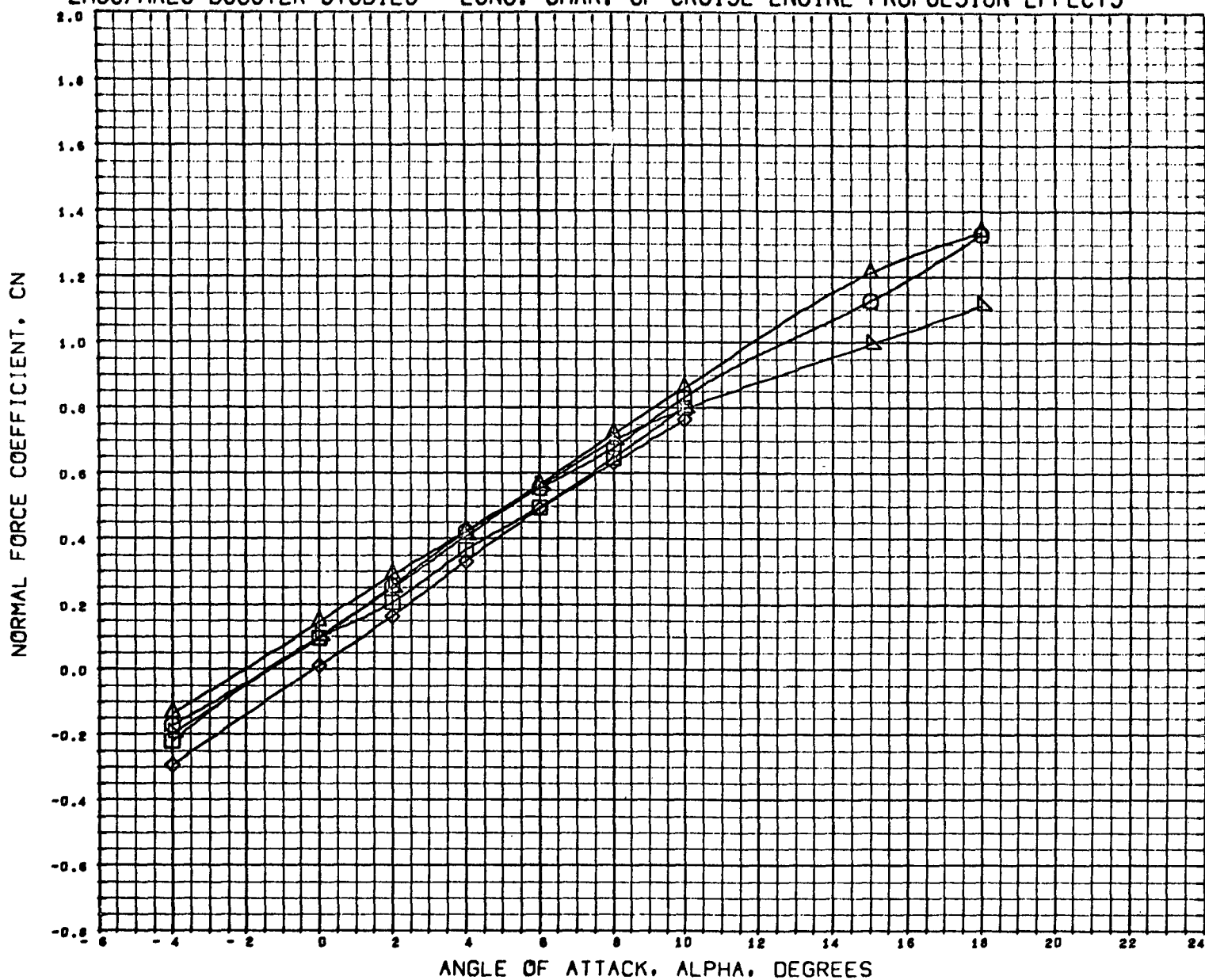
LMSC/HREC BOOSTER STUDIES - LONG. CHAR. OF CRUISE ENGINE PROPULSION EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300A)	NSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H3P	0.753	0.000	0.000	0.000	SREF	1.3550 80.FT.
(AN300E)	NSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H3	0.763	0.000	0.000	0.000	LREF	3.4530 FEET
(AN300I)	NSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H4	0.780	0.000	0.000	0.000	BREF	3.4530 FEET
(AN300H)	NSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H2	0.728	0.000	0.000	0.000	XMPP	2.5950 FEET
(AN300G)	NSRDC-3210,MSFC/LMSC BSTR. (PWR-ON) B1C2F2W1V1H1	0.734	0.000	0.000	0.000	YMPP	0.0000 FEET
						ZMPP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.400

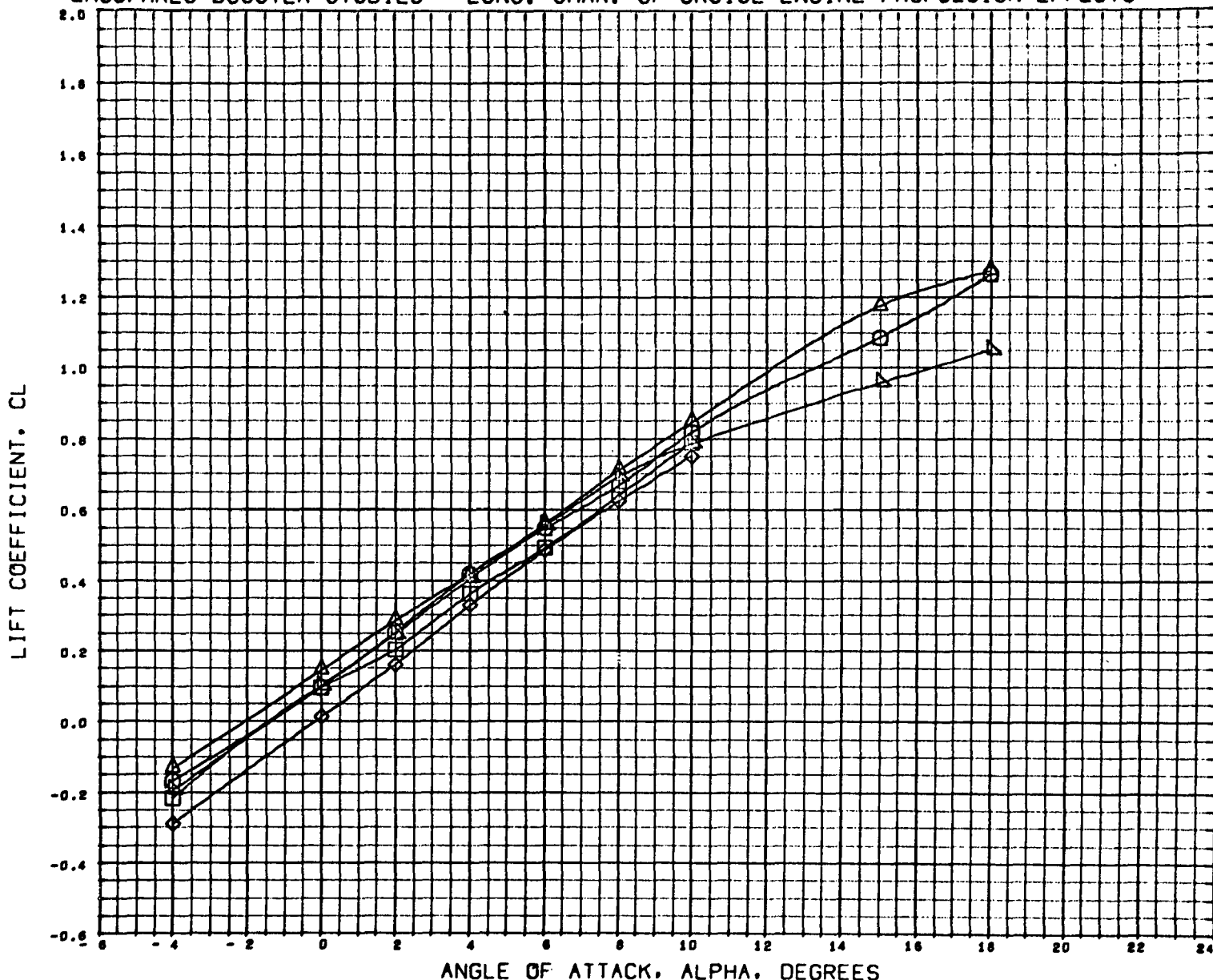
LMSC/HREC BOOSTER STUDIES - LONG. CHAR. OF CRUISE ENGINE PROPULSION EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300B)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3P	0.732	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(AN300F)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3	0.760	0.000	0.000	0.000	LREF	3.4530 FEET
(AN300J)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H4	0.717	0.000	0.000	0.000	SREF	3.4530 FEET
(AN300N)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H2	0.698	0.000	0.000	0.000	XHRP	2.5950 FEET
(AN300R)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H1	0.459	0.000	0.000	0.000	YHRP	0.0000 FEET
						ZHRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.300

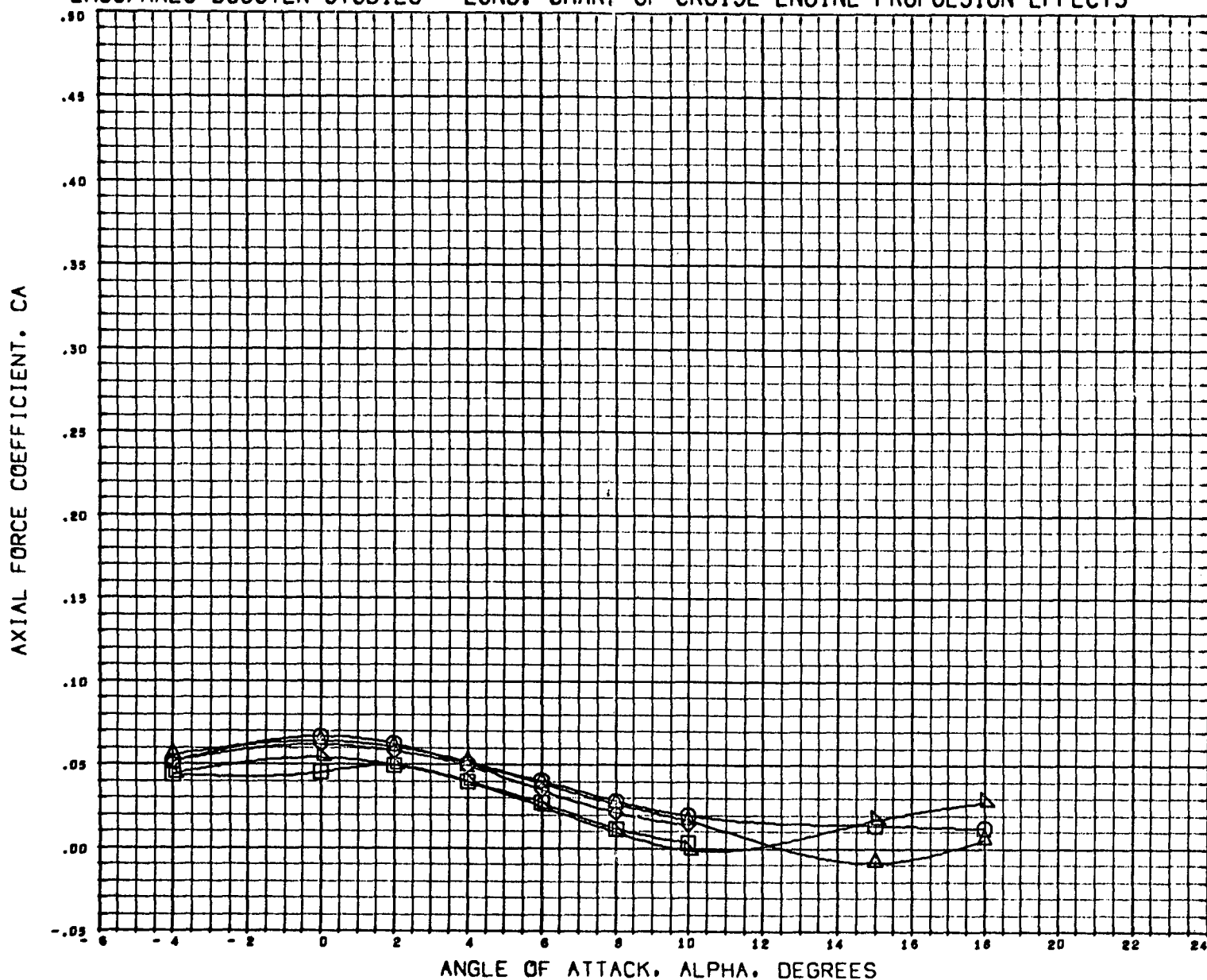
LMSC/HREC BOOSTER STUDIES - LONG. CHAR. OF CRUISE ENGINE PROPULSION EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300B)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3P	0.732	0.000	0.000	0.000	SREF	1.3530 SQ.FT.
(AN300F)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3	0.760	0.000	0.000	0.000	LREF	3.4530 FEET
(AN300J)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H4	0.717	0.000	0.000	0.000	BREF	3.4530 FEET
(AN300N)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H2	0.698	0.000	0.000	0.000	XHRP	2.5950 FEET
(AN300R)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H1	0.459	0.000	0.000	0.000	YHRP	0.0000 FEET
						ZHRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.500

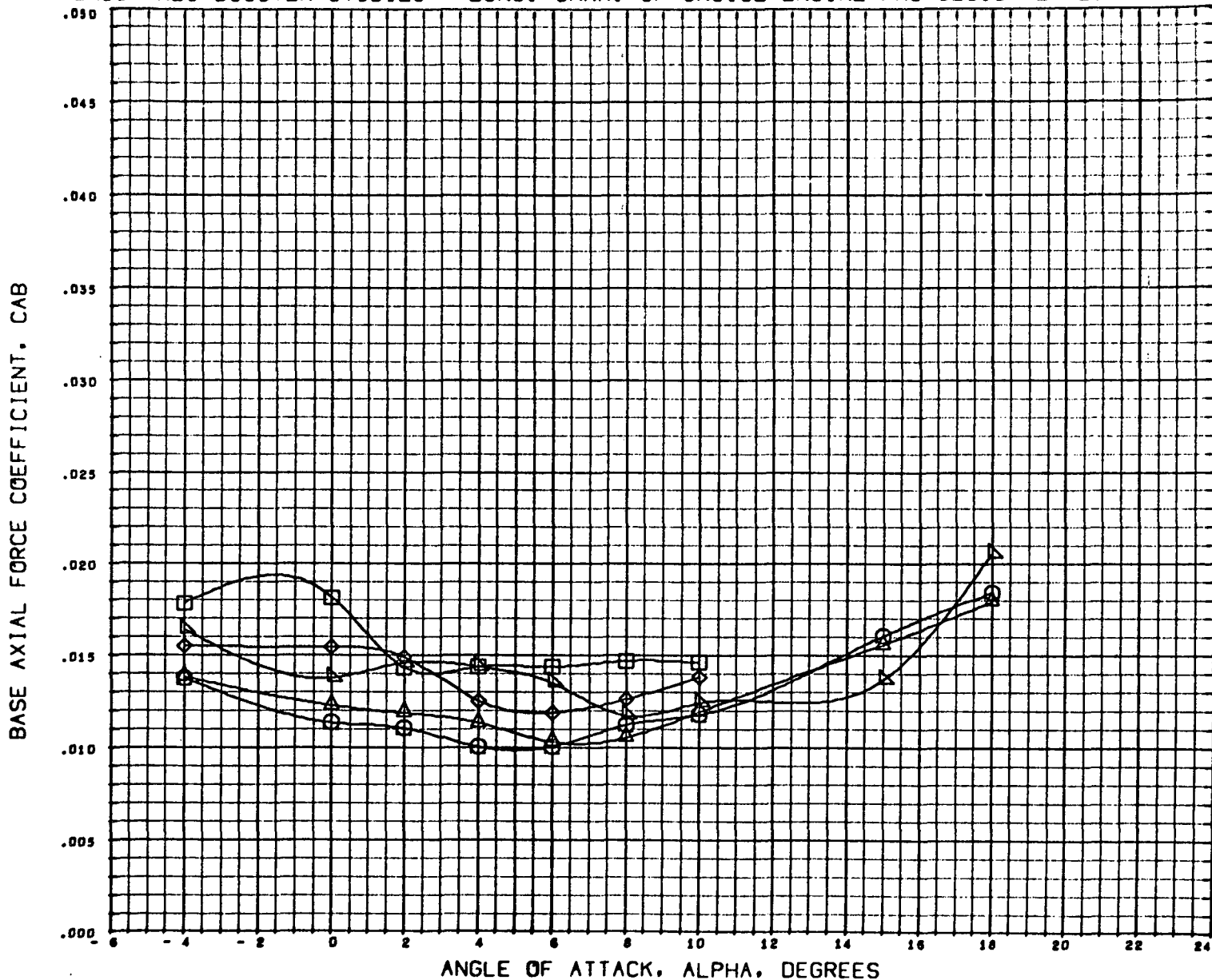
LMSC/HREC BOOSTER STUDIES - LONG. CHAR. OF CRUISE ENGINE PROPULSION EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300B)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3P	0.732	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(AN300F)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3	0.760	0.000	0.000	0.000	LREF	3.4530 FEET
(AN300J)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H4	0.717	0.000	0.000	0.000	BREF	3.4530 FEET
(AN300N)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H2	0.698	0.000	0.000	0.000	XMRP	2.5950 FEET
(AN300R)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H1	0.459	0.000	0.000	0.000	YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.500

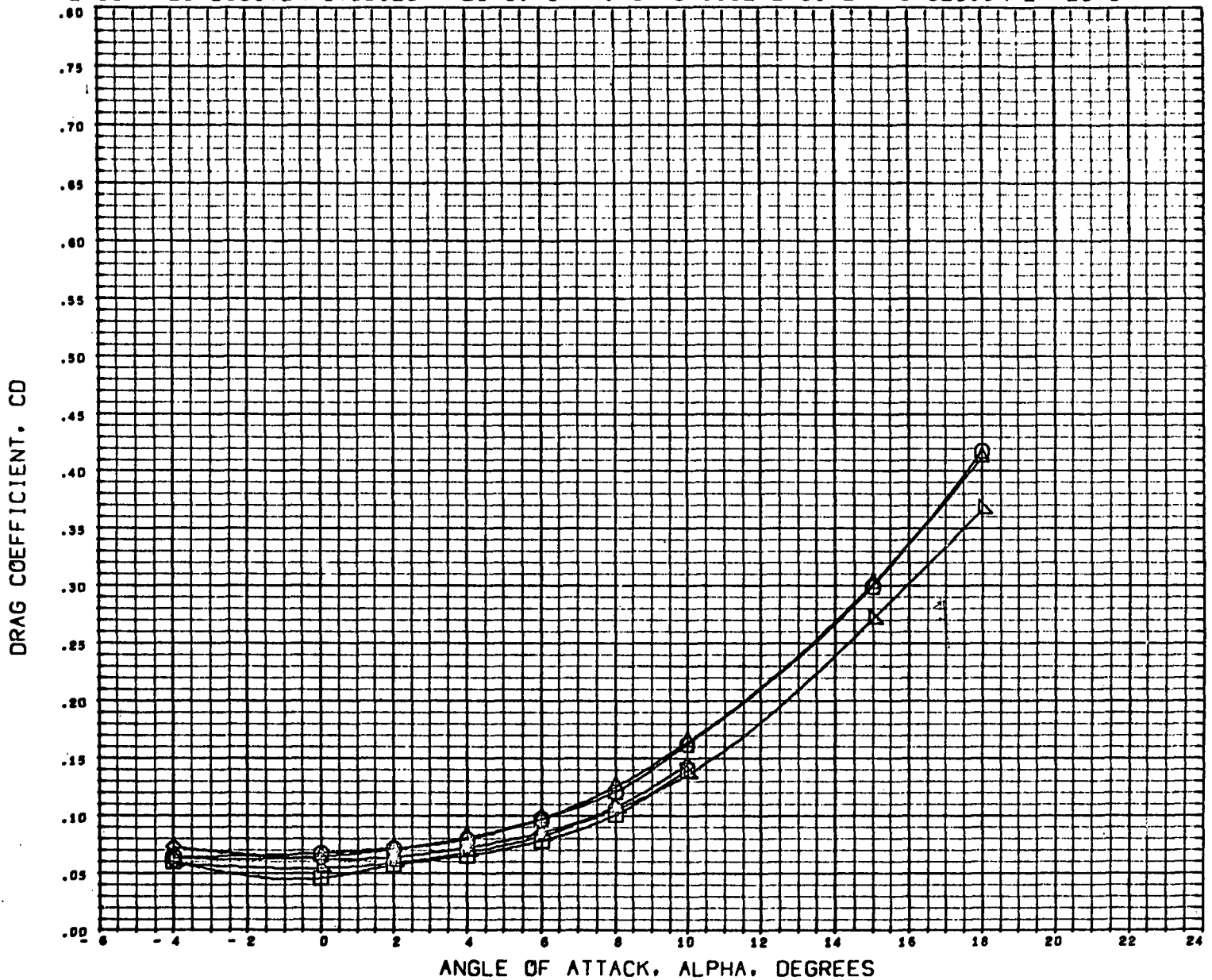
LMSC/HREC BOOSTER STUDIES - LONG. CHAR. OF CRUISE ENGINE PROPULSION EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300B)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3P	0.732	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(AN300F)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3	0.760	0.000	0.000	0.000	LREF	3.4530 FEET
(AN300J)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H4	0.717	0.000	0.000	0.000	BREF	3.4530 FEET
(AN300N)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H2	0.698	0.000	0.000	0.000	XHRP	2.5950 FEET
(AN300R)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H1	0.459	0.000	0.000	0.000	YHRP	0.0000 FEET
						ZHRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.500

LMSC/HREC BOOSTER STUDIES - LONG. CHAR. OF CRUISE ENGINE PROPULSION EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300B)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3P	0.732	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(AN300F)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3	0.760	0.000	0.000	0.000	LREF	3.4530 FEET
(AN300J)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H4	0.717	0.000	0.000	0.000	BREF	3.4530 FEET
(AN300N)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H2	0.698	0.000	0.000	0.000	XMRP	2.5950 FEET
(AN300R)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H1	0.459	0.000	0.000	0.000	YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.500

LMSC/HREC BOOSTER STUDIES - LONG. CHAR. OF CRUISE ENGINE PROPULSION EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300B)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3P	0.732	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(AN300F)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3	0.760	0.000	0.000	0.000	LREF	3.4530 FEET
(AN300J)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H4	0.717	0.000	0.000	0.000	BREF	3.4530 FEET
(AN300N)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H2	0.698	0.000	0.000	0.000	XMRP	2.5950 FEET
(AN300R)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H1	0.459	0.000	0.000	0.000	YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.500

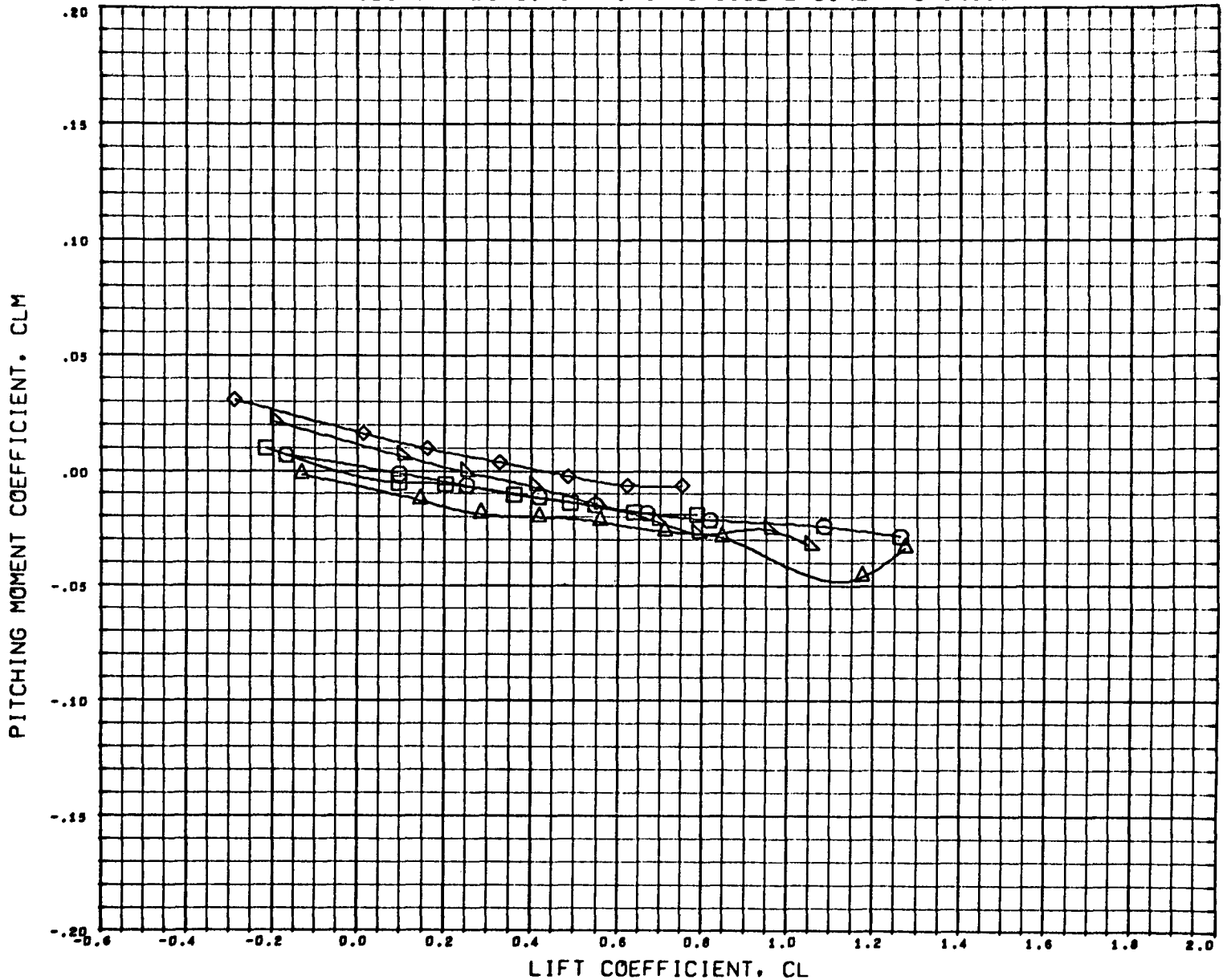
LMSC/HREC BOOSTER STUDIES - LONG. CHAR. OF CRUISE ENGINE PROPULSION EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300B)	N8RDC-321D,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3P	0.732	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(AN300F)	N8RDC-321D,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3	0.760	0.000	0.000	0.000	LREF	3.4530 FEET
(AN300J)	N8RDC-321D,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H4	0.717	0.000	0.000	0.000	BREF	3.4530 FEET
(AN300N)	N8RDC-321D,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H2	0.698	0.000	0.000	0.000	XMRP	2.9950 FEET
(AN300R)	N8RDC-321D,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H1	0.459	0.000	0.000	0.000	YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.500

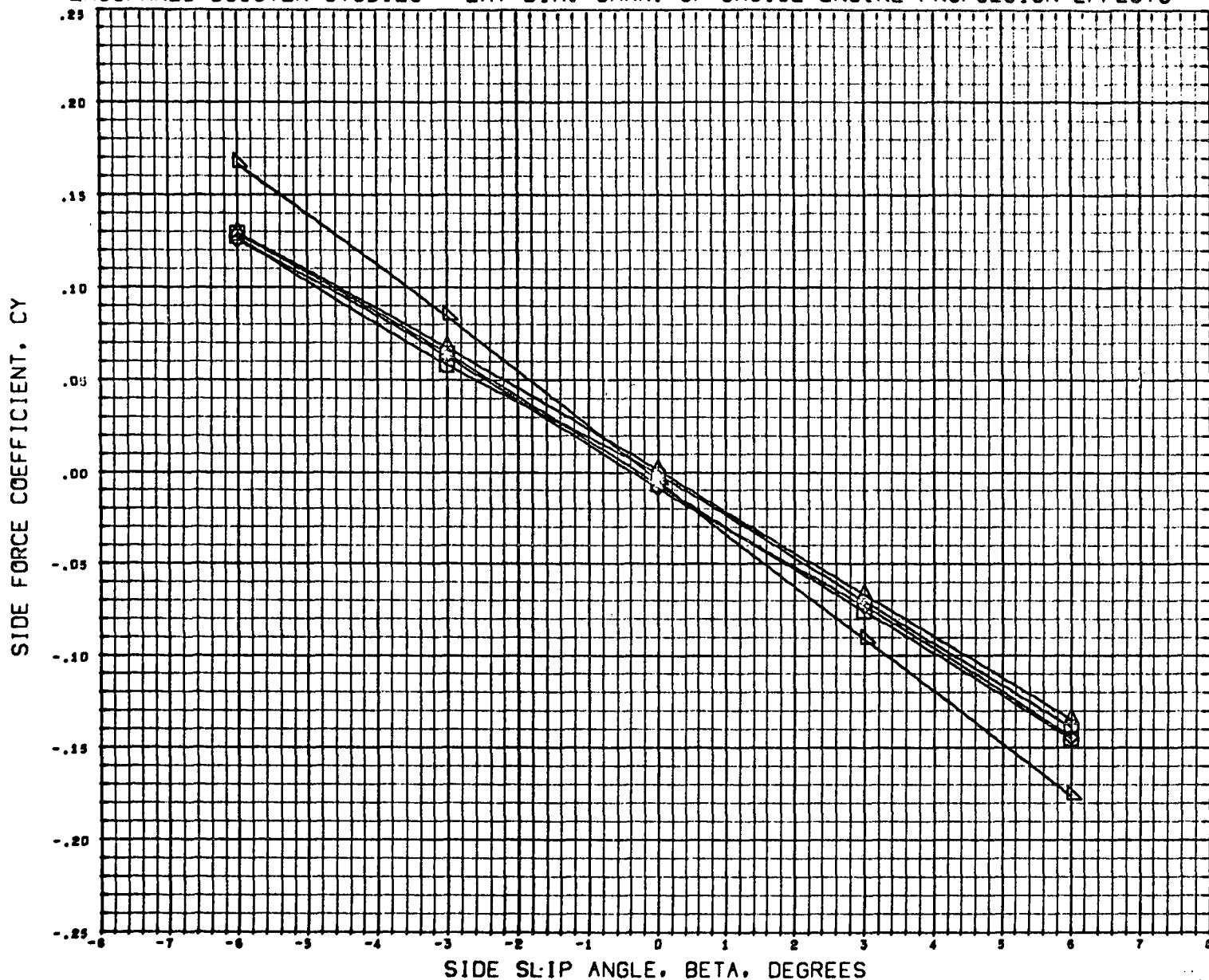
LMSC/HREC BOOSTER STUDIES - LONG. CHAR. OF CRUISE ENGINE PROPULSION EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MSFLOW	ELEVTR	AILRON	RUDDER	REFERENCE INFORMATION	
(AN300B)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3P	0.732	0.000	0.000	0.000	SREF	1.3550 SQ.FT.
(AN300F)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3	0.760	0.000	0.000	0.000	LREF	3.4530 FEET
(AN300J)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H4	0.717	0.000	0.000	0.000	BREF	3.4530 FEET
(AN300N)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H2	0.698	0.000	0.000	0.000	XMRP	2.9950 FEET
(AN300R)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H1	0.459	0.000	0.000	0.000	YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.900

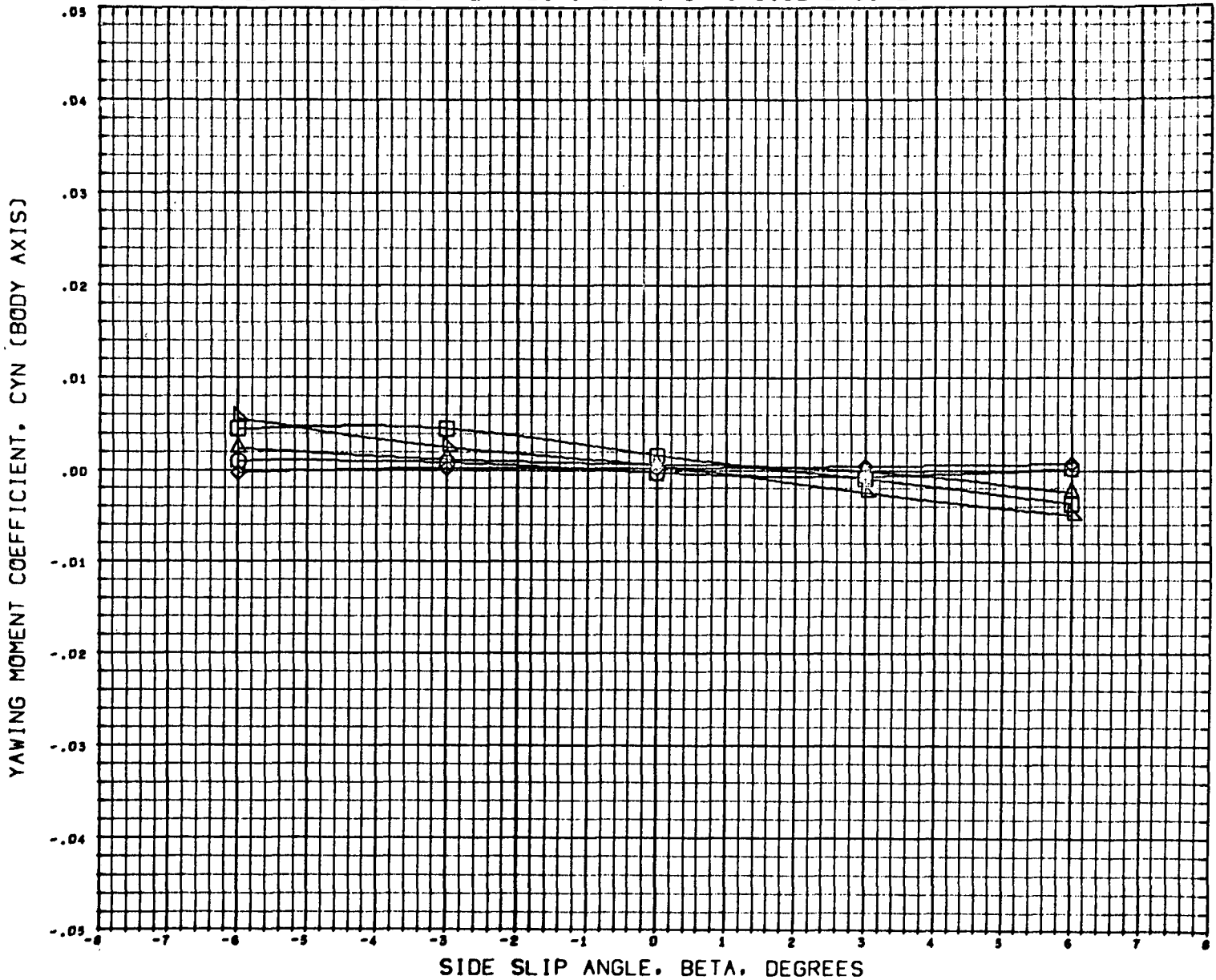
LMSC/HREC BOOSTER STUDIES - LAT-DIR. CHAR. OF CRUISE ENGINE PROPULSION EFFECTS



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION	
(AN3000)	N8RDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3P	-0.017	0.726	0.000	0.000	SREF	1.3550 SQ.FT.
(AN300H)	N8RDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3	-0.003	0.749	0.000	0.000	LREF	3.4530 FEET
(AN300L)	N8RDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H4	-0.001	0.716	0.000	0.000	BREF	3.4530 FEET
(AN300P)	N8RDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H2	-0.012	0.702	0.000	0.000	XMRP	2.9950 FEET
(AN300T)	N8RDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H1	0.160	0.468	0.000	0.000	YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.900

LMSC/HREC BOOSTER STUDIES - LAT-DIR. CHAR. OF CRUISE ENGINE PROPULSION EFFECTS

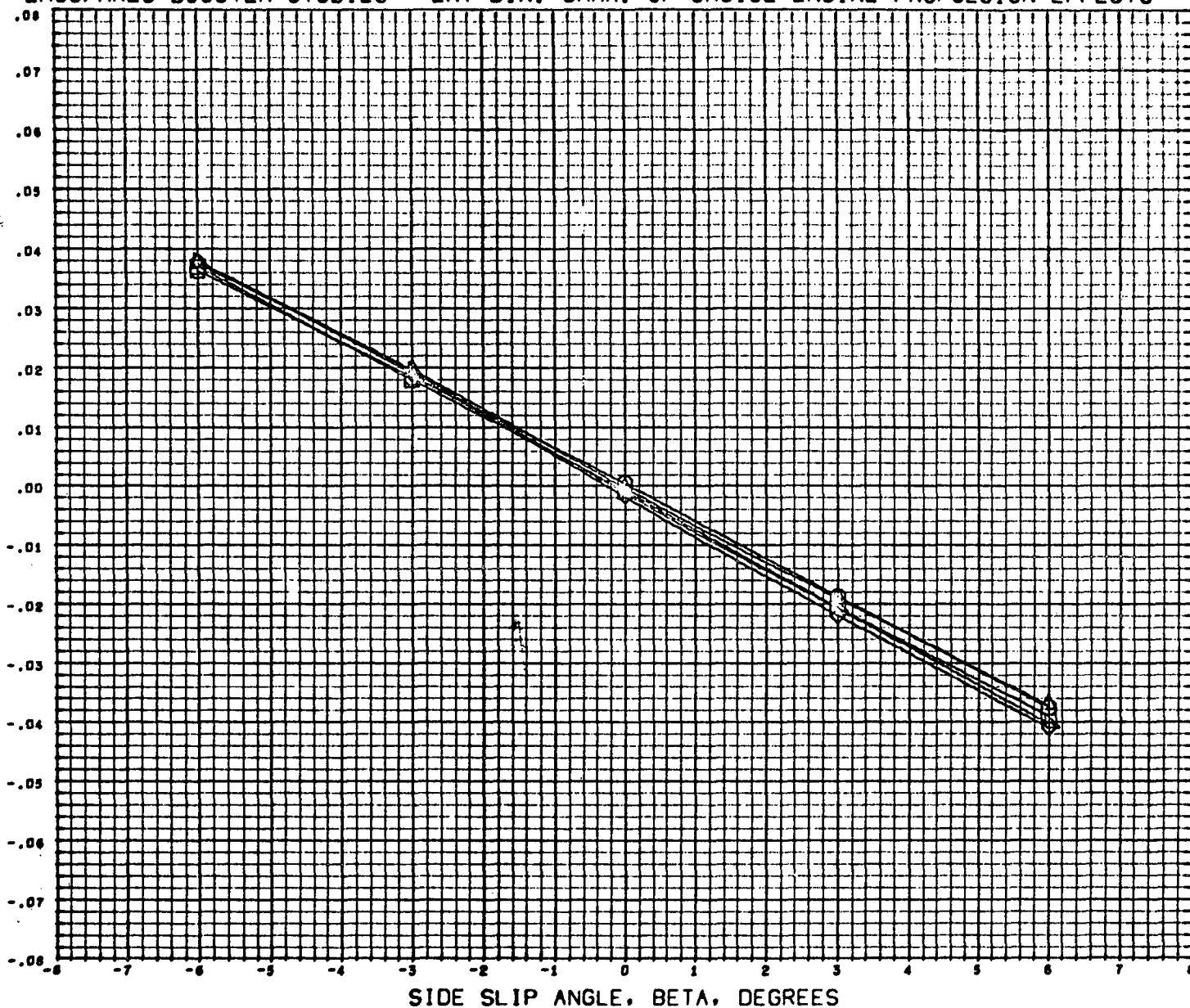


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION	
(AN3000)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3P	-0.017	0.726	0.000	0.000	SREF	1.3550 SQ.FT.
(AN3000H)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3	-0.003	0.749	0.000	0.000	LREF	3.4530 FEET
(AN3000L)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H4	-0.001	0.716	0.000	0.000	BREF	3.4530 FEET
(AN3000P)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H2	-0.012	0.702	0.000	0.000	XMRP	2.3950 FEET
(AN3000T)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H1	0.160	0.468	0.000	0.000	YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.500

LMSC/HREC BOOSTER STUDIES - LAT-DIR. CHAR. OF CRUISE ENGINE PROPULSION EFFECTS

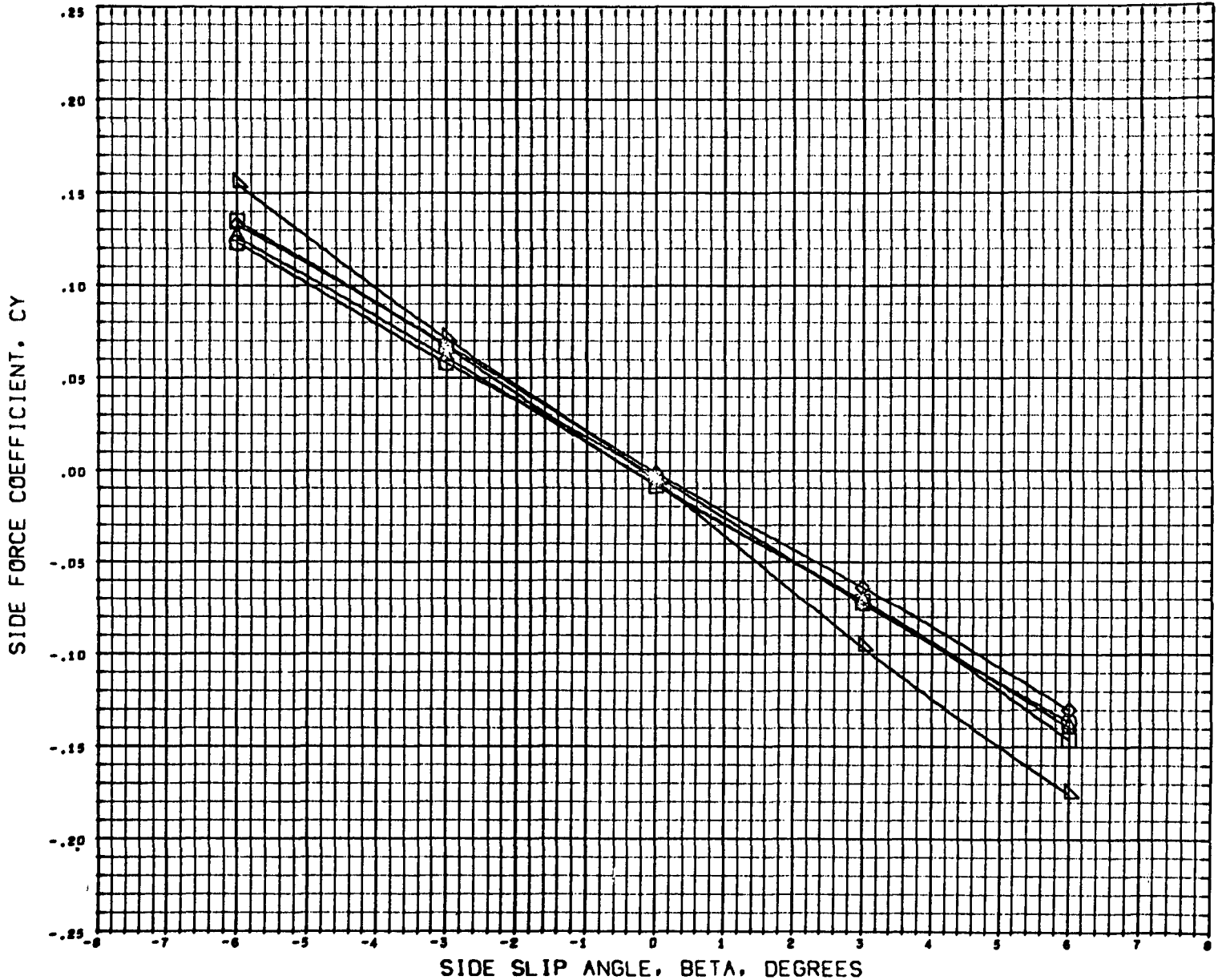
ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION	
(AN300D)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3P	-0.017	0.726	0.000	0.000	SREF	1.3550 89.FT.
(AN300H)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3	-0.003	0.749	0.000	0.000	LREF	3.4330 FEET
(AN300L)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H4	-0.001	0.716	0.000	0.000	BREF	3.4330 FEET
(AN300P)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H2	-0.012	0.702	0.000	0.000	XMRP	2.5950 FEET
(AN300T)	MSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H1	0.160	0.468	0.000	0.000	YMRP	0.0000 FEET
						ZMRP	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.900

LMSC/HREC BOOSTER STUDIES - LAT-DIR. CHAR. OF CRUISE ENGINE PROPULSION EFFECTS



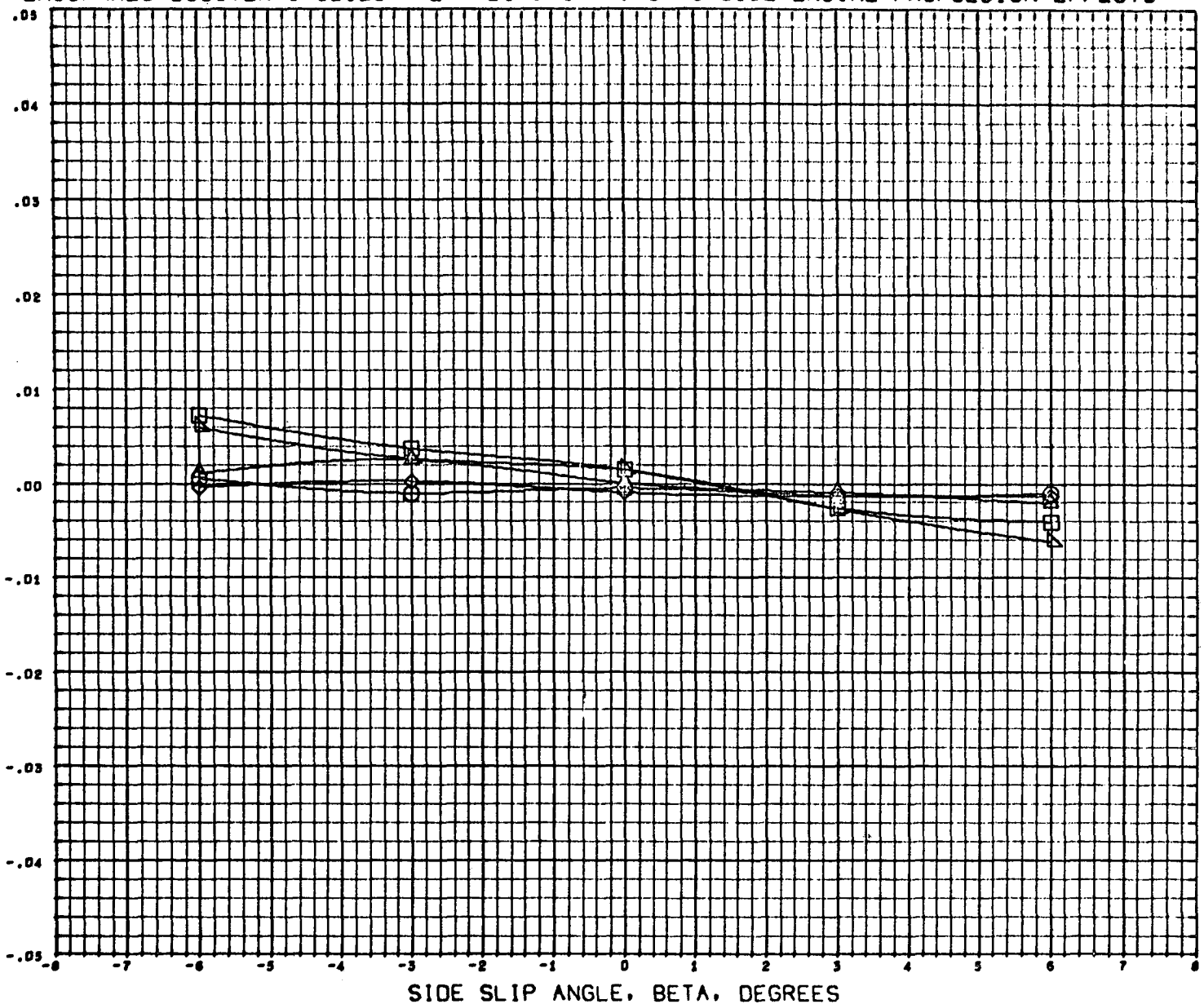
DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION
(AN300C)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3P	-0.039	0.753	0.000	0.000	SREF 1.3550 SQ.FT.
(AN300G)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3	-0.015	0.763	0.000	0.000	LREF 3.4530 FEET
(AN300K)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H4	0.045	0.772	0.000	0.000	BREF 3.4530 FEET
(AN300O)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H2	-0.031	0.729	0.000	0.000	XMRP 2.5950 FEET
(AN300S)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H1	0.116	0.631	0.000	0.000	YMRP 0.0000 FEET
						ZMRP 0.0187 FEET
						SCALE 0.0150 SCALE

MACH 0.400

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LMSC/HREC BOOSTER STUDIES - LAT-DIR. CHAR. OF CRUISE ENGINE PROPULSION EFFECTS

YAWING MOMENT COEFFICIENT, CYN (BODY AXIS)

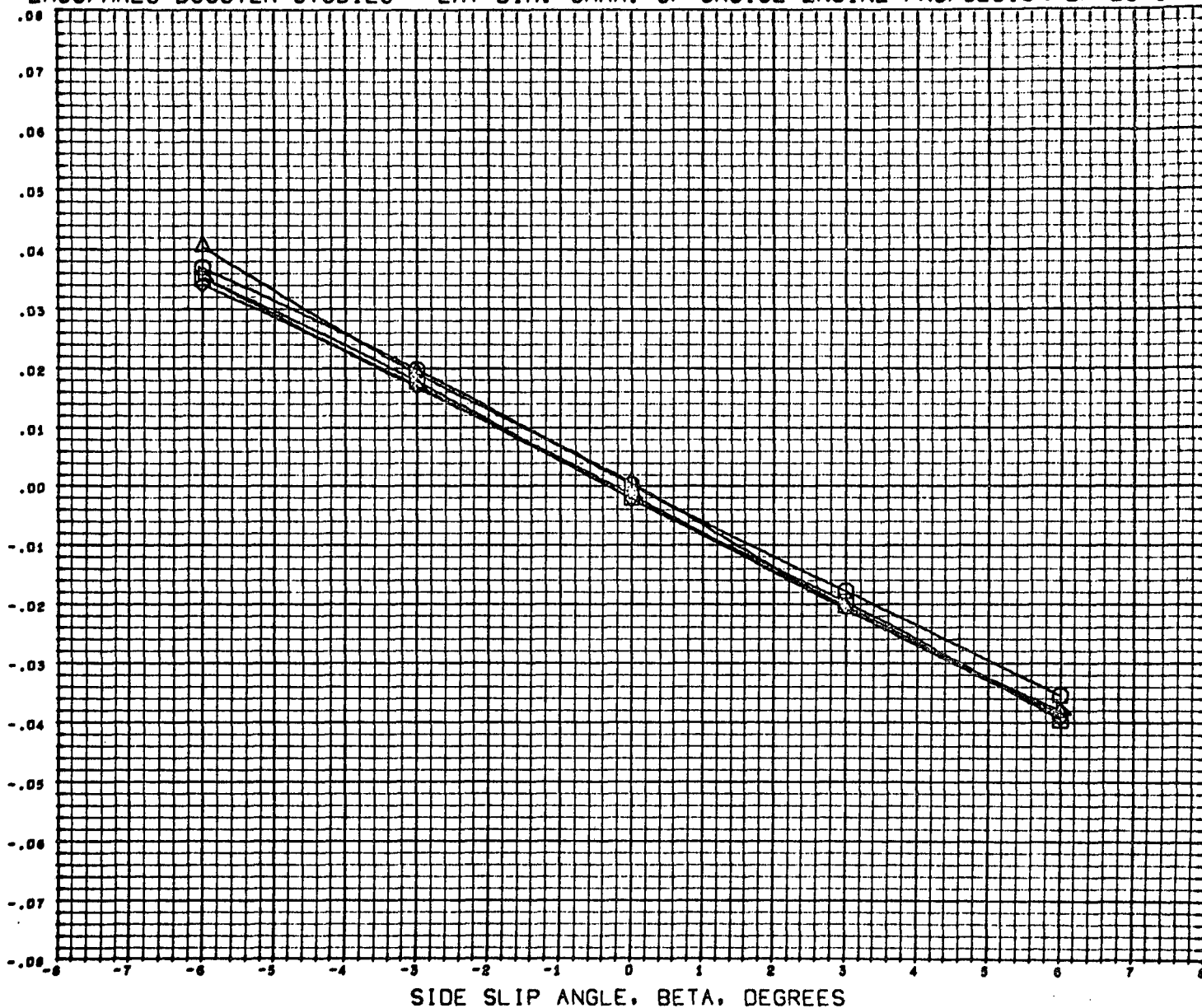


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION	
(AN300C)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3P	-0.039	0.753	0.000	0.000	SREF	1.3550 SQ.FT.
(AN300G)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H3	-0.015	0.763	0.000	0.000	LREF	3.4530 FEET
(AN300K)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H4	0.045	0.772	0.000	0.000	BREF	3.4530 FEET
(AN300D)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H2	-0.031	0.729	0.000	0.000	XMRF	2.5950 FEET
(AN300S)	NSRDC-3210,MSFC/LMSC BSTR.(PWR-ON) B1C2F2W1V1H1	0.110	0.631	0.000	0.000	YMRF	0.0000 FEET
						ZMRF	0.0167 FEET
						SCALE	0.0150 SCALE

MACH 0.400

LMSC/HREC BOOSTER STUDIES - LAT-DIR. CHAR. OF CRUISE ENGINE PROPULSION EFFECTS

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	MSFLOW	ELEVTR	RUDDER	REFERENCE INFORMATION	
(AN300C)	MSRDC-3210,MSFC/LHSC BSTR.(PWR-ON) B1C2F2W1V1H3P	-0.039	0.753	0.000	0.000	SREF	1.3550 SQ.FT.
(AN300G)	MSRDC-3210,MSFC/LHSC BSTR.(PWR-ON) B1C2F2W1V1H3	-0.015	0.763	0.000	0.000	LREF	3.4530 FEET
(AN300K)	MSRDC-3210,MSFC/LHSC BSTR.(PWR-ON) B1C2F2W1V1H4	0.045	0.772	0.000	0.000	BREF	3.4530 FEET
(AN300O)	MSRDC-3210,MSFC/LHSC BSTR.(PWR-ON) B1C2F2W1V1H2	-0.031	0.729	0.000	0.000	XMRP	2.5930 FEET
(AN300S)	MSRDC-3210,MSFC/LHSC BSTR.(PWR-ON) B1C2F2W1V1H1	0.118	0.631	0.000	0.000	YMRP	0.0000 FEET
						ZMRP	0.0187 FEET
						SCALE	0.0150 SCALE

MACH 0.400